REQUEST FOR PROPOSAL

SELECTION OF SYSTEM INTEGRATOR

FOR

COMPLETE IMPLEMENTATION ON TURNKEY BASIS

&

COMPREHENSIVE O&M SERVICES

IN RESPECT OF

INTRASTATE BOUNDARY METERING

CUM

TRANSMISSION LEVEL ENERGY AUDIT SCHEME

USING ABT TYPE

&

CONVENTIONAL ENERGY METERS

TENDER NO. SLDC/116 / 2011

PUNJAB STATE TRANSMISSION CORPORATION LTD.

(REGD. OFFICE: PSEB HEAD OFFICE, THE MALL, PATIALA)

O/O CHIEF ENGINEER/ SO&C, SLDC BUILDING
220KV GRID SUBSTATION, PATIALA - 147001.

REQUEST FOR PROPOSAL

Address details of issuing authority		Chief Engineer/ SO&C , SLDC Building, 220 KV Grid Sub-Station, PSTCL, Ablowal, (Patiala-147001)
Tender Enquiry No		SLDC/ 116 / 2011
Scope / Brief Description		Selection of a System Integrator for Complete Implementation on Turnkey Basis & Comprehensive O&M Services, in respect of Intrastate Boundary Metering cum Transmission Level Energy Audit Scheme based on ABT Type Energy Meters & Conventional Energy Meters suitable for SLDC Operations as per the specification.
Quantity		Around 700 ABT Meters and 400 Conventional Meters associated communication & Setting up of Centralized Energy Centre.
Downloading of Specification / RFP/ Tender documents from PSTCL website	Start Date	24.10.2011
Last date for receipt of any clarifications on the RFP etc.		14.11.2011
Date & time up to which tenders shall be received		21.11.2011 up to 11.00 AM
Date & time of opening of tenders		21.11.2011 at 11.30 AM
Cost of Specification		Rs.2500/- in the form of demand draft in favour of AO/SLDC, PSTCL payable at Patiala (to be submitted in a separate envelope along with the tender or before the due date).

Note RFP/ Tender specification can only be downloaded from PSTCL website www.pstcl.org/ www.punjabsldc.org. No hard copy of the same will be issued by this office.

Address for Bid Submission, Correspondence & Contact Person:	Dy Chief Engineer/ SLDC Project, SLDC Building, 220kV Grid Sub- Station, PSTCL, Ablowal (Patiala)-147001 Phone No. 91-175-2365901 Fax No. 91-175-2367490/ 2365340 Mobile No. 096461-18007 Email: se-sldcprojects@punjabsldc.org

SAVE ELECTRICITY TO REDUCE POWER CUTS

TERMS & CONDITIONS

1. A set of RFP/ tender documents containing technical specification, qualifying requirement, general instructions, terms & conditions, specified Performa etc. against above tender enquiry can only be downloaded from PSTCL websites www.pstcl.org and www.punjabsldc.org and no hard copy of the same will be issued by this office. However the cost of specification i.e. Rs.2500/- in the form of demand draft payable at Patiala in favor of AO/ SLDC, PSTCL, Ablowal (Patiala) is to be submitted at the time of submitting the tender failing which tender of the firm shall not be received/ accepted. Tender quoted by any other party which has not purchased the tender documents on the basis of letter of authority/ power of attorney shall not be accepted. Interested SIs are advised to check the Purchaser specified websites regularly to see the amendment/ corrigendum against this RFP, as no further Press Note may be published.
2. If the day fixed for opening of tenders happens to be a holiday, the same will be opened on next working day at the same time and at the same place.
3. All tenders must be accompanied by Earnest Money Deposit (EMD) at the rates prescribed in the tender documents/ specifications. It shall be a Three Part Bid.
4. Telegraphic/ fax/ e-mail tenders will not be accepted.
5. Conditional tenders are liable to be rejected out rightly.
6. The offers must be valid for 180 (One hundred eighty) days from the date of opening of techno-commercial bid.
7. PSTCL reserves the right to reject any or all the tenders so received without giving any reason and shall not be responsible to pay for expenses or losses that may be incurred by the Bidder in preparation of tender bids.
8. Order preference will be given to Punjab based manufacturers as per erstwhile Board's/ PSTCL's prevailing Purchase Regulations.
9. System Integrators (SIs) are requested to read the specification carefully so that their offer may not be rejected on account of amendments/ revisions (if any) with respect to any earlier specification.
10. Complete Implementation means full responsibility to implement ABT /non-ABT Meters, associated communication sub-system & Centralized Energy Center sub-system as specified in the specifications. Further Comprehensive O&M means full responsibility to undertake effective & efficient Operation & Maintenance activities as specified. System Integrators are advised to study & understand the scope of the tender document carefully. Submission of bid shall be deemed to have been done after careful study and examination of the tender document with full understanding of the implication of the scope explicit & implicit and other terms & conditions.
11. The SI shall bear all costs associated with the preparation and submission of the bid, including cost of presentation and verification of claims made by the applicant for the purposes of clarification of the bid, if so desired by PSTCL. PSTCL will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
12. Interested System Integrators meeting the Qualification Requirement are hereby invited to submit the, Technical, Commercial and Financial Bid Proposals as per the provisions detailed in this RFP. The last date for submitting the bids shall be as stated in this RFP.

Dy. CE/ SLDC Project,
PSTCL, Patiala.

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List of Abbreviations

Abbreviation	Meaning
AMR/ RMR	Automatic Meter Reading / Remote Meter Reading
BBMB	Bhakra Beas Management Board
BOQ	Bill of Quantity
CDMA	Code Division Multiple Access
CEC	Centralized Energy Centre
CEM	Conventional Energy Meter
CPP	Captive Power Plant
CSV	Comma Separated Values
CTU	Central Transmission Unit
DDE/NetDDE	Dynamic Data Exchange/ Network DDE
EMI/EMC	Electro Magnetic Compatibility/Electro Magnetic Interference
EMS	Energy Management System
ETC	Erection, Testing & Commissioning
FAT	Factory Acceptance Test
GIS	Geographical Information System
GTP	Guaranteed Technical Particulars
ICCP	Inter-Control Centre Communication Protocol
IEEMA	Indian Electrical and Electronics Manufacturers Association
IPP	Independent Power Producer
ISO	International Organization for Standardization
LPR	Low Cost Pocket Radio/ Low Power Radio
M2M	Machine 2 Machine
MIS	Management Information System
MOP	Ministry of Power
MPLS	Multi-Protocol Label Switching
NOCC	Network Operations Control Center
O&M	Operation & Maintenance
ODBC	Open Database Connectivity
OF	Optical Fibre
OPC	Object Linking and Embedding for Process Control
OPGW	Optical fibre composite overhead Ground Wire
PERT	Project Evaluation and Review Technique
PLCC	Power Line Carrier Communication
PSPCL	Punjab State Power Corporation Limited
PSTCL	Punjab State Transmission Corporation Limited
RF	Radio Frequency
RSCC	Regional System Coordination & Control
RTD	Real Time Data
RTU	Remote Terminal Unit
SAT	Site Acceptance Test
SCADA	Supervisory Control and Data Acquisition
SCAFA	Standing Advisory Committee on Radio Frequency Allocation
SLDC	State Load Dispatch Centre
TCP/IP	Transmission Control Protocol/ Internet Protocol
TSV	Tab Separated Values
VPN	Virtual Private Network
WPC	Wireless Planning & Coordination
SEM	Special Energy Meter (ABT type)
SLA	Service Level Agreement
ABT	Availability Based Tariff
AC	Alternating Current
API	Application Programming Interface
BIS	Bureau of Indian Standards
BCS	Base Computer System

CBIP	Central Board of Irrigation & Power
CD	Compact Disc
CEA	Central Electricity Authority
CMRI	Common Meter Reading Instrument
COM	Component Object Model (Software Components Terms)
CRCA	Cold Rolled Close Annealed
CVT	Capacitive Voltage Transformer
CT	Current Transformer
DC	Direct Current
DCD	Data Collection Device
DCOM	Distributed COM (Software Components Terms)
DLMS/COSEM	Device Language Message Specification/ COmpanion Specification for Energy Metering
EHV	Extra High Voltage
ESD	Electrostatic Discharge
GPS	Global Positioning System
GSM/GPRS	Global System for Mobile Communication/ General Packet Radio Service
HV	High Voltage
I_b	Basic Current
IEC	International Electro technical Commission
IP	International Protection Rating/ Ingress Protection Rating
$I_{r\text{-}Ph}$, $I_{y\text{-}Ph}$, $I_{b\text{-}Ph,}$	Respective Phase Current
IS	Indian Standard
ISI	Indian Standard Institute
LCD	Liquid Crystal Display
LED	Light Emitting Diode
MD	Maximum Demand
MIOS	Meter Inter Operable Solutions
NABL	National Accreditation Board for Testing and Calibration Laboratories
NVM	Non Volatile Memory
PC	Personal Computer
PCB	Printed Circuit Board
PF	Power Factor
PSEB	Punjab State Electricity Board (erstwhile)
PSGC	Punjab State Grid Code
PT	Potential Transformer
QA	Quality Assurance
RTC	Real Time Clock
TTB	Test Terminal Block
UPF	Unit Power Factor
VB	Visual Basic
VBA	Visual Basic for Applications
Vref.	Reference Voltage
$V_{rn,}$ V_{yn}, V_{bn}	Respective Phase Voltage
VSAT	Very Small Aperture Terminal
VT	Voltage Transformer
3G	3rd Generation Communication

1 INTRODUCTION

1. Punjab State Transmission Corporation Ltd. (PSTCL), is in the process to provide ABT Compliant electronic energy meters at the interface points of PSTCL's grid system at Interstate and Intra-State level as well as to measure the Energy Sent Out (ESO) of the Intrastate Generators, CPPs, IPPs etc. as per the Regulations/ Orders/ Codes/ Policies/ Requirements of PSTCL/ SLDC or as may be decided from time to time, in stages.
2. With the unbundling of erstwhile PSEB, there is need for undertaking Intrastate Boundary Metering Scheme and as per the stipulations of Punjab State Grid Code such interface points need to be covered/ metered by installing 0.2s class accuracy ABT Type Energy Meters.

   Further, PSTCL also intend to cover Energy Audit scheme for each of its 220 & 132 kV grid sub stations and transmission lines based on Conventional Energy meters (CEM)
3. The data from the meters is also proposed to be integrated with SCADA/ RTUs at substation & CEC levels and necessary stipulations/ specifications/ protocols are accordingly being specified for this Scheme.
4. Besides the express need for calculation of Grid losses of PSTCL, SLDC under PSTCL also needs real time monitoring & control of Unscheduled interchanges (UI) to restrict state's drawl and further record and process the data in respect to the power (online data) & energy interchanges (offline/ stored data) taking place in real-time at its electrical boundary points/ interfaces with CTU, BBMB, neighbouring state utilities, state Discoms, Generation & Energy Sent Out (ESO) of state Generators, CPPs/ IPPs, etc. As such all such interface points need to be covered in this scheme. An interface out-put for the UI energy monitoring data at boundary metering points on real time basis, as acquired at the CEC, shall also be provided for the upcoming control centre of Discoms/Gencoms.
5. In addition to Intrastate Boundary Metering there is a requirement of around 400 Conventional Energy Meters of 0.2s accuracy class for Transmission level Energy Audit of 400kV, 220kV & 132kV Transmission lines & Transformers and the data from these meters shall also be acquired remotely by the Centralized Energy Centre in the similar way for generating reports & data storage for analysis purpose and these meters also interfaced with SCADA/RTUs.

2 GENERAL REQUIREMENTS & SCOPE OF WORK

1. This is single point responsibility turnkey contract to be executed through a suitable & capable System Integrator, for complete implementation of Intrastate Boundary Metering project cum Transmission level Energy Audit, as being visualized in PSTCL/ SLDC which includes Survey, design, engineering, supply, testing, packaging, transportation, erecting, successful commissioning, putting into operation and establishing the successful performance during the performance guarantee tests and comprehensive O&M (including warranty etc) thereafter initially for 7 years and further extendable as may be mutually agreed. Complete Implementation means full responsibility to implement ABT Meters, associated communication sub-system & Centralized Energy Center sub-system as specified. Further Comprehensive O&M means full responsibility to undertake effective & efficient Operation & Maintenance activities as specified. This includes all incidentals/ services/ materials/ manpower/ permissions/ liaison/ licences/ spares/ consumables etc., whether explicitly listed or implicitly required for the satisfactory completion and performance of the System as per the specifications, meeting international codes and standards. Intrastate Boundary Metering shall be suitable for ABT Regime.
2. Through this turnkey project, it is proposed to implement a system capable for real-time online monitoring of instantaneous energy inter-exchanges, power quantity parameters, etc., and remotely downloading Meter stored data; do ABT type scheduling (between intrastate players and preparing consolidated state schedule for submitting to RSCC) as may be required, Energy Auditing/ Accounting/ Billing/ UI, Grid Loss calculations, etc. using energy inter-exchanges data from ABT type meters (to be installed under this project or already installed for OA Customers) between various entities connected/ served by PSTCL (i.e. between intrastate distribution companies, State's Thermal Power Plants, State's Hydro Power Plants, Transmission System, etc.), with Open Access Customers, CPPs, IPPs etc. and at interstate boundary with neighbouring states, BBMB & CTU within Punjab (and also at few places outside Punjab). Also the project envisages to have a comprehensive Reporting System suitable for Availability Based Tariff (ABT) as adapted in Punjab and to generate required/ MIS reports at Centralized Energy Centre (CEC), to be located at SLDC, Ablowal, Patiala and to further disseminate the real-time online data & offline/ stored data from the meter available & collected at CEC, processed, corrected or otherwise, as may be required to concerned users/ utilities/ entities at local (at SLDC itself) & remote (Control centres of Discoms, Gencoms, etc as and when or as may be required) locations along with routing of online instantaneous parameters etc. available through CEC system to SCADA/ EMS system for integrating the same with that scheme for EMS applications and to provide a consolidated view for monitoring in real-time by SLDC Operators from revenue/ tariff grade data, as and when proposed Integrated SCADA/ EMS scheme comes up. Till the main Integrated SCADA/ EMS Scheme come up, SLDC operators shall be provided with local operator consoles connected with this Project.
3. System design should be such that it should be further extendable/ modifiable to include monitoring of the inter-exchanges with upcoming Generators and others schemes for generation, transmission & distribution of electric energy which may be implemented in energy sector of the state as and when desired.
4. At present there is a tentative requirement of 700 ABT Type Meters to be installed at some 220 locations within the state and at few places even outside the state (Details are in Annexure-I) along with implementation of associated & appropriate communication sub system and Centralized Energy Centre at SLDC, Ablowal, Patiala meeting the specified end results. Besides ABT meters 400 Nos. Conventional energy meters (CEMs) with similar capability but without ABT functionality are also required to be installed throughout PSTCL at 400kV, 220kV & 132kV transmission lines & transformers for energy auditing purpose at around 150 locations out of 220 Locations.

5. Thorough knowledge of Availability Based Tariff scheme and capacity, capability & honest willingness to understand & implement the user requirements relating to ABT Type Scheduling Unscheduled Interchange (UI), Grid Loss Calculations, Transmission level energy audit etc. and also otherwise as may be required by an SLDC,.
6. Whole of the Turnkey project shall be executed in stages as specified in "Proposed Implementation Plan/ Schedule" section, keeping in view the immediate outputs/ end results required from this project, future requirements and to further synchronize the integration requirements of online data available from this project with upcoming Integrated SCADA/ EMS Scheme.
7. Visualized Schematic of Intrastate Boundary Metering Scheme and its future connectivity to SCADA/ EMS as and when Integrated SCADA/ EMS shall come up in future is as shown in Annexure-II.
8. Detailed schematics of the Intrastate Boundary Metering Project are available at Annexure-III (a) to Annexure-III (b). Schematics are just for visualization purpose only. Numbers of Servers/ Machines shown are only indicative, single/ less number of servers may accommodate multiple functions or more machines may be required as per the solution proposed by the SI to meet the performance requirements & desired end results.
9. At present there are no ABT Meters installed in PSTCL. However there are around 300 embedded Open Access (OA) Customers of PSPCL (Punjab State Power Corp. Ltd.) having different makes of ABT Meters (M/s Secure, M/s L&T, M/s Wallaby, etc.), with remote metering/ communication facilities, but are still being manually downloaded through CMRI (Common Meter Reading Instrument) and accordingly energy/ UI bills are being calculated/ generated for them manually. These ABT meters are procured by Open Access Customers /PSPCL and are installed at their respective premises. The offered system shall have provision for integration of these energy meters with the CEC as and when it is decided in due course, as per the requirement of SLDC/ PSTCL.
10. There are also around 200 existing Conventional Energy meters (CEMs) installed at 400 kV, 220 kV, 132 kV substations of PSTCL. These meters are to be integrated with proposed CEC system as per the requirement of SLDC/PSTCL. Verification of the specifications of these CEMs in respect of whether these meters can be modified/ adapted to interface with the proposed system, any liaison with supplier of these meters for getting changes incorporated, if technically as well as financially viable shall be in the scope of SI. In case some or if all the meters are not compatible with the proposed system or charges/ expenditure on making them compatible are more than the supplied meters for this Project then informing the PSTCL of the facts and seeking approval for replacement of these meters and/ or addition with the new compliant meters with proper justification & proof of efforts done to make these meters communicable with the proposed CEC system shall be the responsibility of the SI. However, PSTCL's decision in this regard shall be final. Further data being downloaded through CMRI at present should be possible to be integrated with CEC.
11. As already stated Scope of Intrastate Boundary Metering Project broadly includes SCADA compatible remote metering for revenue grade power/ energy flow data for Monitoring, Scheduling, Billing and Reporting, suitable for Availability Based Tariff & Transmission Level Energy Audit. To understand the Scope of the project, it can be broadly divided into three parts, (i) Remote End Metering subsystem, (ii) Communication/ Connectivity subsystem & (iii) Centralized Energy Center subsystem. Detailed Technical Specifications and/ or proposed Technical Specifications of these sub-systems are as per "Technical Specifications and Requirement" section of the RFP
12. Details of Comprehensive O&M, are as per Comprehensive O&M Section of the RFP

13. Details of Service Level Agreement are as per Service Levels and Penalty Terms section of the RFP.
14. Suitable number of compatible CMRI (say 25 Number or as may be required by the SI) suitable for manually downloading of meter data (for ABT meters, CEMs (both new & existing) to cater for the eventuality of any meter to CEC communication failure, for extended period of time. Responsibility to manually download meter data in such eventuality shall be of SI. If more than 25 Nos CMRI are required then the same may mentioned in BOQ/ Price Bids. In case later on more CMRI may be required by the SI to meet with Service Level Requirements during or after commissioning and during Comprehensive O&M period then the same shall have to be provided by the SI and Purchaser will not pay for the same. CMRI shall at least have memory Capacity of 8 MB SRAM, BIOS/OS on FLASH/EEPROM Memory to accommodate software of around 5 vendors/ meters and for data downloading purposes.
15. Communication front end (CFE) functionality at CEC end subsystem being implemented should have capacity to accommodate minimum of 2000 number of meters (both SEMs & CEMs) initially as proposed/ specified in the RFP. However the rest of the CEC system except Communication front end (CFE) functionality should have the capability to handle /accommodate data for at least 10000 metering points, located at more than 1500 locations without degradation of performance. The expandability of Communication front end functionality should be scalable to at least 10000 meter points from 1500 locations in increments by addition of modules as and when required on addition of new meters at new locations. No database or CEC software or additional hardware should be required to be added till 10000 points except additional modules in respect of Communication front end functionality and must be indicated clearly in the bid. The bidders must indicate clearly the initial CFE functionality being offered supported by its technical literature/ brochure.
16. Training Requirements of the Purchaser's personal shall be as per the "Training Requirements" section of the RFP.
17. Includes recurring, non recurring, license, permissions, liaison etc along with the fees, charges, etc, if any for all hardware, software, installation, field implementation, Communication, frequency allocations etc. for initial commissioning, commissioning period and for the O&M period. The SI shall also be responsible for incidentals related/ unrelated which may crop up to complete the project within the agreed timelines. Any permission, licence/ tripartite agreement to be executed, etc. if required to be obtained for the Project from any competent authorities, as may be prescribed/ required for its use/ for performance enhancement/ achieving Service Levels, should be in the name of Purchaser. However any reasonable assistance/ documents/ tripartite agreement/ etc. required by SI from the Purchaser so that any licences/ permissions, etc. as may be required, shall be provided, if viable and practically possible, but any expenditure on this account will have to be borne by the SI. All such support required from the Purchaser must be brought out clearly in the proposed solution. However such activity should be undertaken in time bound manner so as not to delay the Project commissioning from the proposed schedule to achieve respective milestone.
18. For Comprehensive O&M no spares shall be provided by the Purchaser and if required by the SI then these must be build-up in the Comprehensive O&M prices. It is the responsibility of the SI to operate & maintain the system. At the end of the Comprehensive O&M, all the faulty equipment shall be got rectified by the SI before handing over the same to Purchaser. Purchaser may order additional equipment/spares before finally taking over the system after Comprehensive O&M, which the SI shall have to supply at its finally agreed rates to the Purchaser so that PSTCL may be able to operate & maintain the system thereafter on its own after end of Comprehensive O&M period.
19. Making available of adequately sized Uninterrupted Power Supply for running the system without any break (At least for 2 hours) due to power failures at critical locations i.e. CEC,

Communication equipment, Hubs, etc. The SI must quote for 20kVA x 2 UPS with 2 hrs backup with auto-change over switch along with cost & sizing requirements for CEC. However Purchaser will have the Option to order it or not, because Purchaser have UPS/ DG Sets/ DC Batteries already available for SCADA/EMS systems at SLDC, which can be shared, provided load/ power requirement of offered equipment/ sub-system is possible to be catered through these. The cost of the UPS shall be considered for the Price bid evaluation.

20. Implementation of additional SEMs/ CEMs, related communication sub-system & data integration as per the specifications for the additional Points during the O&M period and in case of need to provide new equipment/ third party software/ hardware/ communication connectivity etc for the scheme as may be required due to the any exigency arising necessitating changes in specifications during Comprehensive O&M and evolution period, the same shall be arranged by the SI in mutual discussion/ agreement with Purchaser. Further the selected SI shall be fully responsible to undertake/ implement the new features/ functions which shall arise or as may evolve or be required specifically by the users/ purchaser as a result of working with the system, in mutual consultation with the Purchaser. Such evolution period of the system shall start as soon as contract is awarded till the end of the O&M period as specified in this RFP. SI is responsible to depute Persons with requisite qualifications, source code level knowledge & necessary licence to modify the offered software during the execution, commission phases and even after wards. For this purpose any tools (i.e. compilers, debuggers, test tools etc) as may be required shall be the responsibility of the SI and must be supplied as part of the original order/ proposal. SI will have to submit details regarding the time periods required by it for fulfilling the new requirements/ additions/ amendments in respect of software changes, display building, reports, installation of new meters, providing communication infrastructure etc. for each item for providing time bound effective service to the Purchaser during O&M periods.
21. The proposed solution must ensure adequate data security (starting from meters to CEC), data storage and system redundancy.
22. The solution shall at least address all functional and performance requirements within this specification and shall include sufficient information and supporting documentation required to determine compliance with this specification. The solution for the proposed Project should have viable approach which may lead to overall achievement of the minimum goals in time bound manner as specified in this RFP.
23. The CEC solution offered by the SI shall be scalable and capable of integration with other applications/ systems of PSTCL. The SI shall also provide an Interface to integrate the CEC database with the third party billing applications also (in addition to the Billing application that is required to be supplied by the SI as per this RFP) as and when required. Further it shall be possible to exchange the data with already commissioned EMS/ SCADA system through ICCP Protocol (or as may be required/ specified later on). However the present bid must include the cost of implementing such exchange of data with SCADA/ EMS through ICCP server. Interoperability, database details/ charts, all requisite documents, tools, converters, etc. shall be supplied by the SI and it should be possible to change/ configure the interoperability of supplied equipments/ sub-systems as may be required later on.
24. It is the responsibility of the SI and in its own interest that it should clearly & plainly bring out the deviations it shall take/ contradictions in the specifications/ SI's conditions etc along with its ramifications for the Purchaser and suggested solutions to overcome these in the Bid proposal (Performa-I).
25. **Testing/ Demonstration/ Presentation**: Before opening of Price Bids, all the participating SIs shall be called upon to give demonstration along with presentation on their proposed solution/ system in PSTCL, for accessing first hand capabilities of the proposed meters, communication interface devices, communication media and refresh rate achieved from the multiple meters

simultaneously and the result of the demonstration/ testing shall be treated as a part of the minimum pass/ fail technical qualification criteria.

Demonstration/ testing shall include capabilities of the offered solution at least in respect of offered meters, their ports/ protocols/ interfacing capabilities, communication media proposed, achievement of desired refresh rate for all the specified parameters from all the meters simultaneously, data acquisition software details, instantaneous as well as stored meter data retrieval etc. For this purpose, minimum 4 meters (2 ABT type & 2 conventional) each may be installed locally/ remotely at three substations located in Punjab along with the communication through the proposed communication media with data acquisition software/system. The meters shall also be tested for simultaneous communication with the RTU and its Data downloading capability via DCD/CMRI etc.

Necessary equipment/systems/ SIMs etc. required for this purpose shall be brought/ arranged by the bidder at his own cost and risk. For demonstrating RTU connectivity, RTU/ RTU simulator (laptop) may be made available by PSTCL; however, bidder needs to carry requisite RTU simulation system for their proposed protocols for this purpose.

Name and address of such customers where similar project has been implemented if available and which the participating SI are referring to along with full contact details may be given in the Performa-II (A).

26. **Sample Meters with tenders:** SI shall submit the sample meters on returnable basis, two of each type i.e. one ABT Meter each of 1 amp & 5 amp and one Conventional Energy Meter (each of 1amp & 5 amp) along with the tender bid proposals. During demonstration SI shall use these sample meters along with additional number of meters as specified in the demonstration clause of the RFP. Sample meters shall be suitably marked in non erasable ink/ stamping on its Body with Make, Model, Serial Number, etc. The firm will deposit samples along with the tenders having suitable packing arrangement for damage-proof storage at no risk/cost to PSTCL. Samples of finally selected firm shall be retained by the PSTCL for record, however in case of unsuccessful firms the samples may be collected from this office within one month of the PO.

In short the SI will have absolute responsibility for the Project from Start to Finish, for End to End complete Solution for Implementation and O&M services initially for 7 years from the date of successful commissioning of the whole project. This includes but not limited to Sites surveys, planning, design, detailed engineering, procurement, manufacture, assembly, fabrication, factory testing, packing, supply & delivery at site, handling, insurance of all types/ events/ purposes & storage at sites along with all the accessories, interfacing requirements i.e. wires/ cables/ connectors/ Terminal blocks/ enclosures/ cabinets, lock & key arrangement, site preparations, earthing, erection, installation, integration, networking, testing at site, end to end testing, guaranteed availability tests, performance testing, commissioning, training, purchaser's capacity building to independently handle, maintain & further develop the system, finally handing over (however custody of the implemented equipment/ sub-systems/ system shall be of Purchaser from the day it is paid for/ declared commissioned) the Project after the expire of O&M period, willingness to extend the O&M contract for further period as per mutual agreement, supporting & providing the necessary information (i.e. Source code, block diagrams, compilers, chip level details/ schematics etc which may be required to get the system working & continued technical support) to the Purchaser/ third party in case O&M agreement is not extended by any party due to any reason. Implementation and O&M also includes further development of the system, the need for which may evolve during the working with the system, due to new requirements or due to change in policies.

The overall aim shall be to meet with the requirements which at present exist and further shall evolve in future as per the requirements of the stakeholders of the energy sector in the state of Punjab and in process make implemented system world class showcase of the technologies developed & used. As such the involvement of the SI shall not cease with the commissioning of the system as per this RFP or will not be limited to Comprehensive O&M of the commissioned system

only, but SI will have to remain committed and evolve the functions/ functionalities of the system during pre or post commissioning in partnership with PSTCL.

3 QUALIFYING REQUIREMENTS

As there are three distinct/ discernable subsystems of the whole project (i) ABT Meters, (ii) Communication Connectivity& (iii) Centralized Energy Centre based upon Computer H/W & S/W, its is imperative that eligible SI should be 0.2s class meter manufacturer, communication service provider and in software development, either all three in one or bid be submitted by lead member of a consortium formed specifically for this turnkey project, and/or by executing a tripartite agreement (if necessitated due to any regulations) with the communication service provider/s to effectively take care of all the three subsystems. Lead Member of the consortium will be referred as SI for all intent and purpose.

This Invitation for Bids is open to all such eligible SI who is in a position to assume, on a turnkey, single point responsibility basis, the full obligation and responsibility for completion of the works within the specified time schedules and thereafter for Comprehensive O&M as specified.

The SI or any Member of consortium must also have thorough knowledge of Availability Based Tariff Metering Regime, its Scheduling, Revisions, UI, Billing, settlement procedures etc. SI/ any member has to give an undertaking (Performa-III) for having through understanding of ABT scheme and that it is further willing to understand the user specific requirements from time to time & adaptation of ABT as implemented in Punjab and accordingly implement the same for the Purchaser as it may change/ evolve during the pendency of the Contract including during Compressive O&M period.

In the case of a consortium, applicant consortia shall have a valid Memorandum of Understanding (MoU)/ agreement among all the members signed by the Chief Executives/ Authorised Signatories of the companies dated prior to the submission of the bid. The MoU/ agreement shall clearly specify the stake of each member and outline the roles and responsibilities of each member. The MoU shall also clearly mention the lead member who will be acting as SI for the Project. The MoU/ agreement shall be exclusively for this project and all members shall be responsible in case of failure by any member. However it will be the SI who shall be fully accountable for all the defined roles & responsibilities of each member to meet with desired end results & stipulations of the RFP. SI will have the responsibility for selecting/ replacing any existing Member of the Consortium if its performance is not up to the mark or otherwise too (as may be required due to any Govt./ Regulators/ Policy changes or as may be desired by Purchaser etc.), to achieve the defined Service Levels/ specified end results, in consultation with Purchaser, without undue interruption in the availability of data to the Purchaser. Further the Purchaser will make all the interactions with the SI only for all intent and purposes. Ordinarily payments shall be also released to the SI only unless there is a statutory requirement/ law/ regulation to the contrary.

Further the SI/ any Member of consortium can be a company or a Joint Venture (JV) or a 100% subsidiary. In case SI or Members of the Consortium are JV or a 100% subsidiary then the credentials of the partners of JV or parent company of 100% subsidiary can collectively meet all Qualifying Requirements of the SI/ Member of the Consortium. In case of a 100% subsidiary/ JV, parent company/s must submit requisite authorization from the each partner/ parent company in support of participation in the bid along with following:

(i) Parent company/s of the Joint Venture or of the 100% subsidiary shall be liable jointly and severally for the execution of the Contract in accordance with the contract terms, and a statement to this effect shall be included in the authorization.

(ii) Agreement entered into by the joint venture partners or unconditional authorization from parent company for participation in the bid shall be submitted with the bid.

The SI/ all Members should fulfil the following Qualification requirements for this Bid and shall provide the relevant documents as required. The qualifying requirements shall form part of technical specification which shall be considered for the purpose of technical evaluation and to decide eligibility for opening of price bids. In case the SI/ Members are not fulfilling the Minimum Pass/ Fail Requirements but submit the bid, it will be out rightly rejected. No claim whatsoever shall lie against PSTCL for such submissions. SI/ Members are required to check the qualifying requirements before submitting the bids. However, the Purchaser reserves the right to waive the minor deviations, which do not materially affect the capability of the bidder to perform the contract.

Qualification of bidder will be based on meeting minimum pass/ fail criteria as specified. The bidders shall also be required to furnish the information as specified in their bid to assess the general capability/ capacity of the firm to execute the job.

3.1 Technical Experience Requirements (minimum pass/ fail criteria)

3.1.1 The SI or any Member of the consortium shall have prior experience or is presently engaged in establishing Automatic Remote Meter Reading systems in any power sector utility, and

3.1.2 The SI or any Member of the consortium must have the experience of having successfully commissioned at least one on-line in real time ABT monitoring system in a power generation, transmission or distribution utility and same should have been in successful operation, and

3.1.3 The SI or any Member of the consortium must have the experience of having successfully commissioned the remote meter reading project by using either of the following communication technologies i.e. GPRS/ GSM/ 3G/ CDMA/ V-SAT/ OF/ OPGW/ Microwave/ PLCC/ RF/ LPR/ Radio/ Leased Lines/ MLPS-VPN/ M2M etc. and/ or any combination of these as specified), and

3.1.4 The SI or any member of the consortium must have the experience in Software Development, Software Customization, Display Building, Report Customization, etc. suitable for the intended purpose.

3.1.5 The details in this regard are to be submitted strictly as per Performa-IV.

3.1.6 Success of the Testing/ Demonstration/ Presentation as specified in respect of ABT & Conventional meters shall be treated as part of the minimum pass/ fail criteria.

3.1.7 Not able to score minimum marks in Bid Evaluation Criteria as given in Chapter 7 shall be treated minimum pass/ fail criteria.

3.2 Financial Capability Requirement (minimum pass/ fail criteria)

1. The SI (lead member of the Consortium) should have average annual sales turnover of (Indian) Rupees 7.5 Crores or above for the best three year out of last 5 (five) financial year, and
2. No members of the consortium should be in loss (Net Profit/ Loss after Tax) for the last three financial years.
3. Respective Financial data should be certified by company's Chartered Accountant and/ or statutory auditors and detailed Balance sheets and profit & loss account must also be submitted.
4. In case of meter manufacturer is not a SI/ consortium member then same financial QRs as above shall be applicable to it also.

5. The details in this regard are be submitted in the format as per Performa-V

3.3 General Requirements

a) The SI (lead member of the consortium) shall have Quality certifications from an accredited and internationally reputed / renowned firms (viz. ISO 9000 etc.)

b) The SI (lead member of the Consortium) should have office in Punjab. In case SI has no presence in Punjab, SI shall furnish an undertaking that an office shall be opened in Punjab, with sufficient personnel and inventory of spares within a month on selection as successful SI.

c) The SI (Lead member of the consortium) shall have bank's certificate of solvency.

d) The SI (Lead member of the consortium) must have company registration certificate, registration under Labour Laws Contract Act, valid sales tax registration certificate and valid service tax registration certificate.

e) Conversion Rates from foreign currency to INR of the RBI as on last day of that financial year shall be given by SI for conversion purpose of the submitted financial data.

f) Even though the SI and Members of consortium (as specified) meet the above qualifying criteria, they are subject to be disqualified if:

- The SI or any member shall not be in litigation with PSTCL, PSPCL or erstwhile PSEB. Any such litigation shall out rightly disqualify the SI
- The SI or any member shall not be a defaulter for 25% or more quantity for more than 9 months or any quantity more than 15 months in making supplies against earlier purchase orders placed on them at the time of scheduled date of opening of this bid.
- SI or any member Made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements
- SI or any member has Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completions, litigation history, or financial failures etc. in earlier works executed with PSTCL.
- SI or any member has been black listed by any government organization or body.

3.4 Documents to be submitted for accessing the qualifications of the SI/ Members

1. The Profile of the SI and/ or all members of consortium in details to be submitted. In this case Lead Member Shall acts as SI. Also Performa-VI is to be filled.
2. Copies of original documents defining the constitution or legal status, place of registration and principal place of business (All members of consortium).
3. Power of attorney from all members of consortium authorizing the signatory (SI) of the Bid to commit to PSTCL for implementation & 7 years of Comprehensive O&M of the project as given in this RFP. Further that each of member shall be willing to extend the Comprehensive O&M of the Project for more years as may be mutually agreed, if required by the Purchaser.
4. Monetary value of each project/ work performed by the SI during the last three financial years (All members of consortium).
5. Experience in projects/ works of a similar nature and list of major clients who may be contacted for further information on those contracts (All members of consortium), Performa-II (B)

6. Permanent Account Number (PAN) from Income Tax Authorities of area of operation of the SI (Lead Member).
7. Income Tax Return for the last three financial years (Lead Member).
8. Qualifications and experience of key site managers and technical personnel proposed for the Contract.(Lead Member)
9. Reports on the financial standing of the SI, such as profit and loss statements and auditor's reports for the past five financial years (All Member of the Consortium).
10. Information regarding any litigation, current or during the last three years, in which the SI or any member of the consortium is involved, the parties concerned, and disputed amount. (All members of consortium.)
11. The proposed methodology of execution of works backed with their planning and deployment, duly supported with broad calculations and quality assurance procedures proposed to be adopted, justifying their capability of achieving the completion of work as per milestones specified in "Proposed Implementation Plan/ Schedule" section within the stipulated period of completion.
12. Participating SI, if doesn't have facility to manufacture materials required for the work, must submit their vendor list from where they will procure the material/ services with their credential and annual turn over. While choosing vendors the SI must ensure that vendor must have supplied the equivalent quantity of material in any one year during last three financial years.
13. SI along with tender shall submit the complete address/ description/details/ list of tools/ instruments etc available at the works related to the material/equipments (especially the energy meters) offered in the bid.
14. Not withstanding anything stated above, the PSTCL reserves the right to access SIs' capability and capacity to perform the contract, should the circumstances warrant such assessment in an overall interest of the PSTCL, to successfully execute the scope of work covered under the package within stipulated completion period. This assessment shall inter-alia include (a) document verification; (b) bidders work/ manufacturing facilities visit; (c) manufacturing capacity, details of works executed, works in hand, anticipated in future & the balance capacity available for the present scope of work; (d) details of plant and machinery, manufacturing and testing facilities, manpower and financial resources; (e) details of quality systems in place; past experience and performance; (f) customer feedback; (g) banker's feedback etc.
15. In case of necessitated tripartite agreement the SI shall submit the details/draft of the agreement to be executed between the parties (SI, PSTCL and communication service provider/s) along with the clear responsibilities of each party. Undertakings from the intended communication service provider/s showing willingness to execute the above agreement shall also be supplied with the bid. PSTCL shall only agree to make the recurring/ non recurring payments directly to the Communication service provider and other liaison/responsibilities for getting the communication services for providing the requisite Service Levels shall be of the SI and any penalty, in case of any default by communication service provider/SI will also be imposed on SI only as far as PSTCL is concerned. Further, any recurring / non recurring charges payable by PSTCL to the communication service provider shall be indicated clearly in the price bid and shall be considered in the price evaluation.

4 GENERAL INSTRUCTIONS AND OTHER TERMS & CONDITIONS

4.1 Submission of Tenders

The SI/ bidders must carefully observe the following instructions. The offer/ bid/ proposal not strictly in accordance with these instructions are liable to be rejected.

4.1.1 Proposal/ Tenders not fulfilling the minimum pass/ fail qualifying requirements shall be out rightly rejected and decision of purchaser shall be final.

4.1.2 Proposal/ Tender should be submitted in Quadruplicate (4 sets) alongwith one soft copy (CD) of each bid in MS Word format in separate sealed envelopes (without price bids). Each copy should be separately tagged and clearly marked as` Original', 'Duplicate', 'Triplicate', and 'Quadruplicate'.

4.1.3 Pages of each copy of the Proposal/ tender bid should be paged consecutively along with its enclosures/ manuals/ certificates/ performa etc., flagged properly wherever required in the file/ folder along with comprehensive index at the very beginning. In case of necessity of multiple files/ folders each file/ folder should have comprehensive same index with same running page number across all such multiple folders mentioning all the documents even in other files/ folders. Paging of the submitted tender is very important for proper Bid Evaluation. As such Submitted tables & Performa must have a cross reference i.e. Page No & Highlighted Marking (e.g. Page No 5 Mark A, Page No 5 Mark B, Page No 25 Mark E) corresponding to the submitted/ claimed facts by the bidder in its offered bid, where proof of the same could be checked/ referred to. In case of non compliance to these instructions the Bid may be rejected without liability to the Purchaser. As such submitted bids should be complete in all respect.

4.1.4 The tender shall be prepared in formal manner neatly typed or printed with all prices stated both in words and figures. There shall be no erasing. Any corrections made should be neatly done and signed. A systematic form of totaling should be adopted to avoid any ambiguity with detailed description of the equipment offered. Being a RFP minimum requirement in respect of which are confirmed to be supplied are mentioned/ have being specified in the BOQ & Price Bid Performa. However other details of the equipment & services which are being proposed for the Project implementation & Comprehensive O&M, sub-system wise, along with unit rate/s (for increasing/ decreasing the quantities as per survey, for first implementation, during O&M as well as when ever required by Purchaser),

4.1.5 Telegraphic/fax/e-mail tender bids will not be accepted.

4.1.6 The cost of specification i.e. Rs.2500/- in the form of demand draft payable at Patiala in favour of AO/ SLDC, PSTCL, Ablowal (Patiala), if not already submitted, shall have to be submitted at the time of submitting the tender failing which tender of the firm shall not be received/ accepted/ entertained at all. Further any clarification required by the intended bidder in respect of the RFP specifications shall be entertained only after deposit of cost of specifications (which can be sent along with the queries) and no queries on RFP shall be entertained after specified due date.

4.1.7 The Proposals/ Tenders shall be submitted in three parts i.e. Part-I, Part-II & Part-III. Each part will be enclosed in a separate sealed envelope duly super scribed on the each envelope as under.

(i) SI/ Bidder's Name
(ii) Tender Specification No etc
(iii) Part No. I, II or III

Part-I Earnest Money Deposits: The first part will, consist of Earnest Money Deposit (EMD) in the form of demand draft in favor of "AO/SLDC, PSTCL, Patiala" payable at Patiala.

Part-II Qualification/Technical/Commercial bids: The second part will consist of Comprehensive Index, Checklist, qualifying requirements, detailed write-up on proposal along with technologies offered, technical specifications of equipment offered, BOQ (exactly in same format as the Price bid but without the rates/ prices filled in), schedule of deliveries, schedule of deviations, etc. and all other terms and conditions except the rates/ prices.

Part-III Price Bids: The third part will consist of the rates quoted as well as other related terms like Freight, Insurance, ED, CST etc. and other incidental charges relevant to the price as per the specified price schedule along with unit price of each item to cater for increase/ decrease of the Count etc as per actual field survey, or ordered during comprehensive O&M period and/or for other items.

All these three envelopes will be further enclosed in a larger sealed envelope (double covers) both covers (inner & outer) super scribed with as follows alongwith Covering letter (Performa-VII)

(i) Bidder's Name
(ii) Tender Specification No. etc
(iii) Date & Time of Opening.
(iv) Addressed to the CE/ SO&C, SLDC (Projects), PSTCL, Ablowal, Patiala.

4.1.8 Proposals/ Tenders shall be received in the office of Dy. CE/ SLDC (Projects), SLDC Building, 220KV Grid Sub-Station, PSTCL, Ablowal, Patiala up to specified time on the due date given in the tender notice. In case the due date of receipt/ opening of Proposals/ Tenders happen to be a holiday, Proposals/ Tenders shall be received and opened at the same time on the next working day.

4.1.9 Proposals/ Tenders received late will not be considered/ opened regardless of the date of posting of the tender.

4.1.10 The proposal/ tender should be submitted strictly as per RFP/ tender specification complete in all respects. Mere writing that deviations/variations/comments are "As per previous supply & as per catalogue attached" will not be entertained. Deviations/ Variations/Comments, if any should be clearly detailed out, mentioning the clause in the same chronological order as given in this specification; otherwise it will be presumed that all clauses stipulated therein are acceptable to the SI/ Bidder. No post tender development will be allowed regarding any change in terms of prices or technical specification.

4.1.11 Proposal/ Tender must bear signatures of a person authorized by SI. Authenticating documents to prove authority of signatory (Legal power of attorney in favor of signatory) must be attached with the tender.

4.1.12 The firms having permanent security deposit of Rs.10.0 (ten) lac with the CE/ SO&C Organization, (irrespective of the fact whether they have Permanent EMD (PEMD) already deposited with other purchase organization/s of the PSTCL), a certificate to this effect issued by the Accounts Officer/SLDC, PSTCL, Patiala during three months immediately preceding the due date for tender opening and showing the Serial Number/ Account Number allotted in the permanent Earnest Money Deposit Register shall be submitted by the SI/ Bidder in the envelope for Earnest Money, for seeking exemption thereof. Similarly Public Sector Undertakings fully owned by the Punjab Govt/ Central Government/ Other state Governments supplying material directly through units owned by them shall submit a certificate of Govt. ownership issued by the concerned Govt. Department in the envelope for Earnest Money for exemption from Earnest Money. Exemption shall not be applicable if the tender is submitted for supply of material through private unit/ manufacturer.

4.2 Opening of Proposals/ Tenders

4.2.1 Offers/ Proposals/ Tenders will be opened on the date and time prescribed in the RFP in the presence of SI or their authorized representatives, who may like to be present. In case the date of opening of tender falls on a holiday or holiday is subsequently declared on that date, the Proposals/ Tenders will be opened on the next working day following the holiday at the same time and venue as notified in the NIT. The following procedure will be adopted for the opening of Proposals/ Tenders:

4.2.2 Firstly the main envelope containing the bids will be opened in the presence of the bidders' representatives who choose to be present at the time & date as notified in the RFP. After opening the main envelope, the envelope marked Part- I (Earnest Money) shall be opened first and if these deposits are found to be as per the requirement of the specifications, only then the envelope marked Part-II shall be opened. The bids without earnest money deposits shall be out rightly rejected.

4.2.3 After opening Part-II of the bids (Qualification/technical/commercial), the bids will be taken up for SI's qualification, Proposal's technical & commercial evaluation. For this the very first step shall be to see whether the SI/ Bid has properly/ completely filled Check List (Performa-XVIII) and comprehensive Index, Paging, as specified; without going into details of the proposal at the discretion of the Purchaser. Non Compliant bids on this account shall be out rightly rejected which otherwise may be responsive and/ or most economical.

4.2.4 The third part of the bids (Price bid) shall be opened in case of only those firms whose Part-II of the bids after evaluation is found to be conforming to the specifications. The date and time for opening Part-III of the bids will be intimated to the qualifying bidders.

4.2.5 The price bids (Part-III) will be opened in the presence of the representative of the qualifying bidders who choose to attend.

4.3 The officer inviting Proposals/ Tenders, contracting/purchasing agency/ PSTCL (referred to as Purchaser) reserve the right to modify the schedule of requirement, technical particulars and the specifications at any time and to place the order as a whole or in parts and to reject any or all the Proposals/ Tenders received without assigning reasons or liability. The purchaser will not be responsible for and will not pay for expenses or losses that may be incurred by the tenderer in the preparation of the Proposals/ Tenders.

4.4 The material offered should be strictly according to the specifications laid down in the RFP documents. The quotation should also indicate the make /name of the manufacturer, brand of the equipment offered accompanied with other descriptions, literature and sample, if any, at Tenderer's own cost. Fully dimensioned drawing of the equipment, technical particulars and detailed literature shall also accompany the tender. For bought out assembly/ units, detailed drawings, part number and name of the vendors will be provided in the bid. In respect of need for supplying the documentation Special attention of the SI/ bidder is drawn towards Documentation & Life Span Clauses of the Technical Specifications & Requirement section of the RFP.

4.5 **Detailed Write-up on the Proposal:** Participating SIs are required to submit a detailed write-up (in Performa-VIII) along with Solution Design (As annexure to write-up) of the proposed solution along with detailed schematics showing the various components, modules, etc. whether hardware or softwares along with their respective functions, uses etc. Features/ specifications of the offered solution and sub components/ modules may also be listed and described. Pro & cons of the offered solution/s should also be discussed in the write-up. Proposal/ Products / services offered should meet the requirements visualized/ subsequently evolved as mentioned in the RFP document. SI is required to give a suitable explanation on how the offered item in the Bid will be used.

Purchaser reserves the right to ask for details/ presentations/ demonstrations/ visits etc as specified in this regard from the bidding SI as part of the Techno-Commercial Evaluation. The write-up must have specific chapters on following:

(i) Main write-up must consist of detailed and separate write-ups on (a) Remote Meter End, (b) Communication Sub-system & (c) Centralized Energy Centre end. Detailed specifications of equipments being supplied and of computer hardware/ software must also be mentioned in the respective write-ups with reference to detailed brochures/ manuals etc accompanying the bid.

(ii) Remote Meter End write-up must include the meter details/ capabilities, number of ports (independent and/ or shared) and protocols available for each, modem/ DCU/ RTU arrangement, etc along with any external power supply arrangement/ requirement clearly showing the same on a detailed diagrams/ schematic

(iii) Details on how the meter and communication devices including connecting cables and external power supply cables, if any, shall be made secure & tamper proof.

(iv) What alternative arrangement/s it is proposing in case where principal communication connectivity is found not available during actual implementation. For the purpose of evaluation it may be assumed that there shall be 5% locations (out of 220 locations) where main communication connectivity shall not be feasible due to technical/ any reasons.

4.6 **Validity of Tender:**

Proposals/ Tenders must be valid for 180 (One hundred eighty) days from the date of opening of Techno- Commercial bid. Any SI revising the offer/ bid within the validity period is likely to be ignored and blacklisted.

4.7 Order preference will be given to Punjab based manufacturers as per erstwhile Board's and PSTCL's prevailing Purchase Regulations.

4.8 SI/s may have to demonstrate/ give presentations/ arrange visits to the already implemented similar Projects as part of Techno-Commercial Evaluation.

4.9 **Other Terms & Conditions:**

4.9.1 No conditional offers shall be acceptable.

4.9.2 Various Performa has been given in the RFP to be filled in by the SI. SI may amend/ modify the Performa as per its requirement/exigency. However any such amendment/ modification shall be listed in the Deviation Schedule (Performa-I) with justification/ reason and how it affects the SI and the Purchaser.

4.9.3 Request for extending the due date of Proposals/ Tenders may not be considered.

4.9.4 No printed general conditions of Sale attached with the tender shall be accepted.

4.9.5 The bidders are required to fill and submit all the Bidding Schedules.

4.9.6 The evaluation of the bids will be done on the basis of information provided by the SI in the Performa/ schedules/ undertakings/ certificates/ specified write-up submitted as has been asked for in the RFP. The information in these documents should be specific and self contained without giving any references to the technical literature. Any condition/ clarification necessitated/ Deviation taken must be clearly mentioned/ brought out in Deviation Schedule Performa, otherwise it will be taken that SI/ Bidder agrees to all the conditions/ stipulations of the RFP. Any dispute/ variation later on shall deem to be a default on the part of SI. Any shortcomings if found later during the scrutiny/ evaluations of the tenders, the proposal shall be suitably cost loaded even if the submitted bid is claimed to have nil deviations

4.9.7 During design/ execution of this work, in case there is any change in the specified location/ number of meters, etc. then the contract value will be adjusted in accordance with the unit prices for the corresponding items to be added/ deleted.

4.9.8 Quantity/ number of minimum items required by Purchaser are indicated in the Sample BOQ and must be quoted at least for that quantity/ number of consoles/ workstations/ meters/ other items, etc.

4.9.9 While quoting for any item efforts must be made to segregate the cost of different functions if shared servers are proposed for various functionalities. Efforts must be made to segregate cost of fixed & recurring charges as far as possible.

4.9.10 Price Bids must be submitted in the prescribed sample format (Performa-XV) clearly indicating the applicable taxes (ED, CST, Service Tax), which are payable by Purchaser. In case any tax component is not payable or less payable (due to any concession available) than it must be indicated in the price bid, by purchaser, clear remarks against the same must be given in the remarks column. Otherwise in case of any ambiguity full cost loading of taxes shall be made and Purchaser shall not consider any plea later on. In case of any double bid or a bid which can be interpreted with two final prices, the same shall be evaluated to the disadvantage of the bidder, and even if with that disadvantage the bidder has least cost and finally selected, it shall have to execute the order at lesser of two costs. As such special attention must be given while filling in the Price bid performs so that it may not lead to ambiguous price evaluation.

4.9.11 All the component cost shall be included to arrive at final cost and bidder has no right to ask/ suggest for excluding any component from the final cost.

4.9.12 Purchaser reserves the right to interpret the clauses to clear any doubt/ contradiction/ ambiguity/ conflict in the stipulations of this RFP at any time of and its decision in the matter shall be final and without any liability to the Purchaser. The response to this tender should be full and complete in all respects. Incomplete, partial or conditional bids shall be rejected. The SI must quote for all the items asked for in this tender.

4.9.13 Purchaser reserves the right to modify/ amend/ add/ delete the stipulations of the specifications before final date of submission of the proposals. However due notice & time will be given to all the concerned to make necessary changes in their tendered offers.

4.9.14 **Rate Contract**: Bidder has to quote for the complete solution along with unit rates of the offered equipment, so that in case of addition/ deletion of item/ equipments proportional payments may be made/ deducted. Also the same rates now quoted will be freezed as rates for rate contract in case of any similar work is required to be executed e.g. extra meters at new locations, additional operator consoles, additional remote operator consoles, additional billing/ scheduling consoles, etc at the discretion of the Purchaser. All the Optional items/ features as mentioned in the offered proposal of the SI must be quoted compulsorily and shall be evaluated for final cost comparison. However final decision to procure the same is reserved by the Purchaser at its discretion without any liability/ claim.

a) The Purchaser reserves the right at the time of Contract award to increase or decrease the quantity of items. The actual quantity against the supply may vary upward and downward with the approximate quantity for ABT meters and CEMs given in Annexure-1. Subsequent purchase order/s may be placed as & when there is a requirement and upto the last date of validity of rate contract.

b) The purchaser reserves the right to place any or no number of orders for supply during the rate contract period.

c) The purchaser reserves the right to place the purchase orders on any other supplier(s) during the rate contract period. Purchaser reserves the right to suspend/terminate the Rate Contract at any time during the tenure of the Rate Contract without assigning any

reasons, whatsoever. No compensation shall be payable to the selected bidder in this regard.

d) The Purchaser reserves the right to award the rate contract simultaneously or at any time during its currency with one or more supplier(s).

e) The Purchaser reserves the right to place separate rate contract/s during the rate contract period. Purchaser may obtain any items referred to in the offer from other sources to meet emergency, if the purchaser (whose decision shall be final) is satisfied that the selected bidder is not in a position to supply specific quantities within the period in which supply is required.

f) The Rate Contract would be finalised for the period of Contract including Comprehensive O&M period. The purchaser reserves the right to renew/extend the rate contract with the bidder at expiration of the contract at the same terms and conditions, for a further period upto 6 months after expiry of currency of rate contract. The bidder has to pass the benefits, if any, arising due to price variation of items during the validity of rate contract to the purchaser.

g) Supply Order may be placed upto the last date of the currency of the rate contract. Delivery date in the Supply Order need not necessarily fall within the currency of the rate contract but it can go beyond it depending upon the terms of delivery stipulated in the rate contract or in specifically agreed condition of delivery in respect of particular supply order. No extension of validity period of the rate contract itself is required when deliveries against outstanding supply orders continue even after expiry of the validity period. The rate contract will remain alive for purpose of delivery for all the stores ordered during the currency of the rate contract until deliveries have been completed.

4.9.15 In case of 7 years of Comprehensive O&M the SI/ Bidder has to quote year wise basis clearly indicating the details of fixed cost and recurring cost.

4.10 **Equipment Testing**

Type Testing:

The ABT Meters and other equipment/ sub assemblies shall conform to the relevant type tests. Type test reports for all these items shall be submitted to the purchaser for approval/ acceptance. Purchaser reserves right to witness/ conduct type tests as specified at vendor's cost and the charges against type testing (which has to be indicated in Price schedule) shall be payable only against successful type testing. A complete integrated unit shall be tested to assure full compliance with the functional and technical requirements of the Specification. The testing sample shall include one of each type of meters, cards, modules, devices, sub assemblies, cables etc. The list of Type tests to be performed on the meters and other items is mentioned in specifications.

4.11 If any document/ literature/ manual, Certificate, etc. is in a language other than Punjabi or English, the same alongwith translated copy in English/ Punjabi shall also be supplied, duly attested by the authorized signatory of the SI/ Bidder.

4.12 Necessitated Corrigendum/ Amendment/s to the RFP Specifications, if any, will be put on the web site/s without any further notice in press.

4.13 Number of items may be increased or decreased and/ or altogether deleted from the requirements/ scope as may be desired without any liability & claim.

4.14 All the communication including this RFP and the bid documents should be signed by the authorized representative of the SI.

4.15 Any questions/ clarifications, if required, may be asked by sending an email to se-sldcprojects@punjabsldc.org . PSTCL will respond to any request for clarification of the tender document by responding directly and/ or in the FAQ, only if the firm has already submitted the cost of the Bid document as specified. As such all the interested SIs are

advised to deposit bid document price and view the FAQ page on www.punjabsldc.org in this respect from time to time. The clarification should be asked only as per the format given below. Queries not adhering to this format may not be responded to.

Sr	Page No/ Section No. of the RFP Document	Query Details
1		
2		

For any one to one or collective meeting/s or discussions can be arranged by prior appointment. PSTCL reserves the right not to respond to any/ all queries raised, which in its opinion, and at its sole discretion, considers that it would be inappropriate to do so or does not find any merit in it.

4.16 The sections and detailed table of contents are given at the beginning of this document. The SI is expected to examine all instructions, terms, forms, and specifications in this document. Failure to furnish all information required by the tender document or submission of a bid not substantially responsive to requirements of the tender document in every respect will be at the SI's risk and may result in the rejection of the bid.

4.17 SI shall quote the prices of all the goods & services as required/ mentioned in the RFP, valid for 180 days in the Performa –XV & BOQ in Performa-XVI (i.e. Price Bid Performa-XV as such without Prices/ amounts filled in.)

4.18 **Work Appraisal:** If required works appraisal of SI and/ or all members of the Consortium shall be done by authorized representative/s of the Purchaser as part of Techno-Commercial evaluation, as may be desired by Purchaser. For the works appraisal, if required firms shall have to deposit following charges with PSTCL:

(i) Rs. 50,000/- per firm if firm/s are located outside Punjab some where in India.

(ii) Rs. 25,000/- per firm if firm/s located within Punjab

Note: Work Appraisal is normally required if some new firm/s submit tender which has never supplied the tendered item to PSTCL/ erstwhile PSEB earlier, its work appraisal shall be carried out before opening of the Part-III (Price Bid). However if a firm has been manufacturing similar items and has proven experience, it may not be considered as a new firm.

5 TECHNICAL SPECIFICATIONS AND REQUIREMENTS

5.1 General

As the SI has to provide the complete solution/ proposal and it has to further provide Comprehensive O&M services and develop the system further as per the requirements of the Purchaser and/ or as it may evolve. So it is not the intent to specify completely herein all the details of the hardware, software, communication and design of the system. However the system shall conform in all respects to high standards of engineering, design and workmanship and shall be performing in continuous commercial operation in manner acceptable to the purchaser meeting the best standards of workman ship. The offered system shall be complete with all components and software necessary for their intended purpose. The solution design, supply, installation, testing, commissioning and Comprehensive O&M of total system shall be within the scope of vendor's supply irrespective of whether those are specifically brought out in this specification and/or the commercial order.

The bare minimum, common specifications for all the proposed equipment to be supplied by the SI, shall be as follows:

Standards: All the equipment shall be as per relevant Indian standards for such equipment installations. If Indian standards are not prescribed for any equipment than International/ IEC Standards shall be met with. In case there is no standards prescribed any where than the equipment shall at least be non hazardous, non polluting, non interfering with the working of other related/ unrelated equipment, tamper proof, securely installed and suitable for the intended purpose.

Power Supply: All the equipment shall operate from available electric supply where ever the equipment is installed. It could be 220VAC, 50Hz +/- 30%, 48 VDC, 220VDC, 12VDC as the case may be. Any additional converter/ inverter/ rectifier etc shall be either built in or provided with the equipment with proper sealable/ tamperproof arrangement. In case the equipment is critical element of the scheme and on which depends the working of the significant part of the scheme then it should have suitable backup power supply i.e. UPS, Inverter, etc as specified with sufficient long backup for continuous operation of such critical elements as the case may be. Critical element shall be defined as Communication Hubs if visualized in the solution, CEC, Remote Operator Consoles etc. The equipment shall be capable of withstanding surges & voltage spikes of 6KV as per IEC 61000-4-5 standards.

Climate: The equipment shall be suitable for climate & weather conditions as specified in the Annexure-V

Wiring/ Connectors/ Terminal Blocks etc: All the wiring, connectors, terminal blocks shall be as per the standards. Suitable Test Terminal block (for CT auto-shorting/ shorting link type and for PT, fuse type), TBs, Connecting wires for CT/ PTs and Power supply etc. shall be required for all the Meters as may be required for successful commissioning.

Indicators: All the equipment shall have suitable indicators to show healthiness of its operations and/ or fault condition.

Cabinets/ Enclosures/ Mounting: SI shall install meters on respective C&R panels. Generally Space (approx. 350mm H * 200 mm W * 125mm D) is available on the existing C&R panels for installation of the SIs supplied metering system, However in case such space is not available or is not suitable for the supplied metering system due to any reason then SIs will have to provide its own mounting arrangement/ cabinets/

enclosures/ panels etc. along with cabling etc. from existing C&R panels with suitable & complete sealing arrangements. Size of Panel/ dimensions will depend upon the number of meters (SEMs/CEMs) at the respective location and dimension of the meter being supplied by the SI. Requirement of mounting arrangement will depend upon the actual field conditions and as per the scheme to be provided by the bidder, but it will be used for price bid evaluation purposes. Actual requirement of Panels/cubicles for each site will be accessed based on the field survey by the SI during detailed engineering phase.

Type tests: All the relevant equipment shall be subject to Type Tests as per IEC/IS standards prescribed for the equipment if any, including EMI/EMC. The tests shall be carried out through any approved Central Govt. Approved Laboratory. Purchaser reserves the right to witness/ conduct Type test as specified at Vendor's cost and the charges against Type Testing shall be payable only against successful type testing. Cost of undertaking Type tests of the equipment shall be given separately by the SI.

Routine Test: All the relevant equipment shall be subject to routine test procedures as per the standards prescribed for the equipment and witnessed by the representative of the PSTCL. For Routine Tests conducted, the calibration certificates for all the lab instruments used should be submitted with the reports.

Packing: All the equipment to be supplied shall be suitable packed so as that there is no damage to the equipment of any kind and it shall be possible to store the equipment at outdoor locations for extended periods.

Nameplate: All the equipment supplied shall carry the suitable Name plates identifying it completely. Further all the equipment must be marked “Property of the PSTCL” along with Purchase Order No etc.

GIS: It should be possible to keep an account of equipment. Complete details & quantity of the equipment at particular location.

ETC: Complete erections, testing & commissioning of the equipment including site preparation, earthing, power supply etc shall be ensured & provided by the SI as specified. Any incidentals, permissions, licences, etc. required at site or otherwise in respect of the installation, commissioning & continuous working of this equipment at various sites as may be required to fulfil the scope of the Project whether stated explicitly, implicitly or implied. Appropriate help/ permit to works, documents, etc. if available/ possible easily with Purchaser shall be provided.

Security/ safety/ Safe custody of the equipment: Security, safety & safe custody of Equipment shall be the responsibility of the SI at all stages of the project execution. Any equipment shouldn’t be left unattended. Equipment shall be properly handed over to authorized person by the SI taking due receipts. SI shall strive to locate the Equipment within the premises of the Purchaser.

Documentation: The Successful Bidder shall submit hardware and software documentation in three sets for the whole scheme to Purchaser for review and approval. After approval four set of all the documents shall be submitted as final documentation. Any changes observed during field implementation shall be incorporated in the as-build drawing and four sets of same shall be submitted to Purchaser. All manuals, configuration utilities and software tools shall be in English language.

The following minimum documents are envisaged for submission:

Detailed engineering drawing of Remote End Subsystem, Communication Sub-system and Centralized Energy Centre

Details of Meter locations/ feeders

Details of Communication & CEC end hardware to be supplied
Details of software to be supplied
Functional Design & Specification
Hardware, software, maintenance and operation manuals.
FAT/SAT/ GSAT documents
Testing Facilities Available in-house (Performa-XIV)

Further Successful Bidder shall provide complete set of documents in soft copy as well (CD media) in two sets. 2 sets of CD/ Floppy for system back up shall also be provided to restore the complete system in case of system crash due to unforeseen reasons.

Continuous Operations: The system shall be designed for continuous operation (24 hours/day, 365 days/year) without any need for shutdowns for any activity. Requirement of regular/ specific shutdown if any may be brought out in the proposal itself.

Life Span: The design life of the equipment shall be a minimum of 15 years from the date of final acceptance. The life shall be achievable through normal and regular maintenance and without major dismantling or overhauling. All type of spares and spare modules shall be made available during life time of the equipment for maintenance, repair and upkeep of the equipment.

The Bidder shall make available at no cost to Purchaser the manufacturing drawings and rights to manufacture those subassemblies which the manufacturer will not support or discontinue to support for during this life span including subassemblies not included in the original procurement. For each subassembly, the specific parts supplied shall be identified and referenced in supplied documentation.

The Successful Bidder shall provide 7 years of Comprehensive O&M service including warranty for the supplied equipment from the date of commissioning after successful GSAT and shall be responsible for its maintenance during this period including supply of spares, if required, included in the O&M cost, for ensuring the successful operation of the system.

5.2 Technical Specification for ABT & Conventional Meters

5.2.1 Qualification Requirements of the 0.2s class Meter Manufacturer, if it is neither the SI nor a member of consortium, from whom these will be sourced:

1. Who meets the same Financial Capability Requirements as are required for SI and Member of the Consortium, that is minimum average turnover and not in loss conditions. (Same documentary proofs as stipulated for SI/ Members shall have to be supplied)
2. Who is a manufacturer of 0.2s class accuracy, Static Tri-vector Type, Four Quadrant, Bi-Directional, revenue/ tariff grade Energy Meters, suitable for EHV/ HV circuits and has previously supplied the same to Indian Utilities. (Certified Proof to be Attached)
3. The meter supplier shall not be defaulter for 25% or more supply for more than 9 months or any quantity for more than 15 months in making supplies against earlier POs placed on them
4. Business dealings have not been suspended and the firm has not been blacklisted & debarred.

5.2.2 Scope of the Specification

This specification covers supply and ETC of CT/PT operated 0.2s Class ABT Meters & Conventional Energy Meters. Detailed description of the technical specifications of the required ABT & Conventional Meter is given in Annexure-IV. SI has to fill up the Check list-cum-Technical Particular Sheet in respect of ABT & Conventional Meters to be supplied as per Performa –IX (A) & Performa –IX (B).

1. ABT & Conventional meters supplied by the SI shall be got tested & sealed from the Meter Testing Lab as may be specified.
2. Onsite Installation & Commissioning of the meters shall be got approved & terminals/ ports etc, sealed from the agency as may be specified.
3. Further the meters after installation & commissioning shall be further subject to testing to check its integrity & proper working as per the prevailing system of the Purchaser.
4. In case any deficiency is found after installation & commissioning of the meter it shall be rectified by the SI if possible, otherwise SI will have to replace the meter at its own cost.
5. **Type Test:** In addition to as already specified above in common for all the equipments & in detailed specifications of the meters, the type tests certificates as per the applicable standards/ CBIP technical report -88 for meters issued by an authorised test house are required to be furnished by the SI/ Meter Manufacturer. Only type tested meters are acceptable in first instance. However Purchaser reserves the right to get these meters Type tested again, in its presence. Any fees on this account shall be borne by the SI/ Meter Manufacturer and shall be reimbursed by Purchaser only if type tests are successful. SI need to indicate the cost of Type Testing charges in the price bids.
6. It is again reiterated that the SI shall be responsible for the complete installation and commissioning of the meters (along with test blocks, if separately provided) as specified and further as per Purchaser's advise, including unpacking and site inspection on receipt at site, mounting the meters on existing control/ relay panels at an appropriate viewing height, connection of CT and VT circuits including any required field cables/ re-wiring, functional testing, commissioning and hand over. The contractor's personnel shall procure/ carry the necessary tools, equipments, materials and consumables (including insulated tapes, wires, lugs, ferrules, hardware etc.)
7. Suitable number of compatible CMRI for manually downloading of meter data to cater for the eventuality of any meter to CEC end communication failures, for extended period of time are to be provided by SI. As a part of commissioning of CMRI the SI shall load the software specified into the PCs as desired/ directed by the Purchaser and fully commission the same. The SI shall also impart the necessary instructions to engineers. A user friendly manual covering resetting / remedial measures to be taken by the users in day to day operation of CMRI as a corrective measure at site has to be provided by the SI. However rresponsibility to manually download meter data in such eventuality shall be of SI as specified.
8. CEA on the initiative of MOP has recommended the DLMS/ COSEM (IEC 62056) as an open standard protocol for energy meters in India. CEC should have necessary software and interfaces to accept data from DLMS/ COSEM based meters for

Remote Communication as specified. However till companion standards are published by BIS and/ or such meters are available, meter with other open standard protocols or proprietary protocols which may be available and suitable for the intended purpose could be installed. As such CEC should have facility to accept data from such meters through APIs, Protocol Converters etc., may be based upon IEEMA specified interoperability MIOS based system. Full details of any protocols whether open, standard or proprietary, must be made available to the Purchaser as specified. Further any royalty etc. shall not be payable by the purchaser if it takes the services of any third party to develop suitable devices/ software using any of these proprietary/ standard/ open protocols at least for the present Project. Further CEC should also be able to integrate and be compatible with already existing/ installed ABT meters at OA Customers end and with existing conventional energy meters installed in 400kV, 220 kV, 132kV substations of PSTCL.

9. Any protocol selected above for the meters should be such that it should be possible to acquire time stamped instantaneous/ Current Block/ Current Day Instantaneous parameters as specified for achieving a refresh rate of 10 seconds or better (even though for present RFP it has been specified as, around 45 seconds (and must not exceed 1 minute) for all the ABT meters (SEMs) simultaneously and refresh rate must not exceed 15 minutes all the CEMs simultaneously, in respect of time stamped instantaneous/ Current Block/ Current Day Instantaneous parameters as specified, due to communication system constraints & to keep the whole implementation economical), may be by transmitting only those parameters which changes by a particular threshold value (should be user programmable for individual parameters) and by routinely undertaking a demand scan automatically for received data integrity every few minutes, so as to optimize the data volume to available channel bandwidth along with routine & secure downloading of offline/ stored data from the meters.

5.3 Communication between Meters & CEC

5.3.1 Introduction

The complete implementation of Communication sub-system for connectivity between Meters & CEC shall be in the scope of the SI. The implemented system should at least meet all the requirements suitable for the purpose as specified.

5.3.2 General Requirements

1. For the purpose the Project, the SI shall design, procure and ETC (Erecting Testing Commissioning) a suitable communications sub system (May be based upon GPRS/ GSM/ 3G/ CDMA/ V-SAT/ OF/ OPGW/ Microwave/ PLCC/ RF/ LPR/ Radio/ Leased Lines/ MLPS-VPN/ M2M etc. and/ or combination of any/ all these with and/ or without data hubs/ concentrators/antennas/ interfacing devices/ protocol converters placed at appropriate location throughout if technical solution need for the same or without these if there is no need) along with any leased line etc from communication provider's/ Internet Service Provider's hub/ system to CEC to achieve a data refresh rate as specified in Clause 5.2.2.9 of the RFP in respect of time stamped instantaneous/ Current Block/ Current Day Instantaneous parameters as specified, may be by transmitting only those parameters which changes by a particular threshold value (should be programmable for individual parameters) and by routinely undertaking a demand scan automatically to check data integrity every few minutes to optimize the data volume to

available channel bandwidth along with routine & secure downloading of offline/ stored data from the meters for Analysis/ energy accounting/ billing/ UI/ Grid Losses Calculation etc. as may be required, automatically as per schedule or on specific requests from the control centre. For Boundary metering, the actual requirement of data refresh rate is of 10 Seconds or better for the meters to be interfaced with SCADA/ RTUs.

SI shall also propose an alternative communication sub-system/s wherever principal communication connectivity is found not available during field survey. For the purpose of evaluation it may be assumed by the bidder that there shall be 5% locations where main communication connectivity shall not be feasible due to technical/ any reasons. Further alternative communication connectivity subsystem could consist of more than one communication media/ mode/ provider.

2. Suitable Multiplexing equipment, Data Concentrators, Interfacing devices, Modems, any M2M system, antennas, etc along with connecting cables, power cables, lugs, TBs, etc. as may be required.
3. Negotiations required with communication provider for connections, service, SLA etc.
4. All the licences/subscription etc. shall be procured in the name of the PSTCL for which the Communication Service provider shall have to sign a tri-party agreement between the SI and the PSTCL as other parties.
5. Any hardware, software, settings, configurations, site preparations, interconnecting cables, accessories etc at various locations etc.
6. The SI shall also be responsible for co-ordination/ liaison with regulatory bodies, DoT, WPC, BSNL, TRAI, NOCC, and SCAFA etc. for obtaining necessary approvals / clearances on the behalf of Purchaser for commissioning / establishing and subsequent operation of the network. Time required for these clearances shall be within the timelines defined in this RFP. Purchaser will provide reasonable assistance/ documentation to the SIs in approaching these bodies. However one time charges/ recurring charges for the contract period (Implementation phase and Comprehensive O&M Phase) shall be payable by the SI and must be built in the cost of implementation and the O&M Charges respectively.
7. The proposed communication network shall (a) have emphasis on high reliability and availability, (b) have efficient dynamic bandwidth management, (c) have modular architecture for growth and expandability (d) shall support flexible network configuration changes. It is desired that SI must execute a SLA with Communication sub-system provider to achieve desired availability as specified.
8. The data communications from meter to modem/DCU/converters and further to CEC end should be secure & tamper proof and it should not be possible to tamper with the data in between ABT Meters & CEC using any means. Data may be encrypted between Meters & CEC and secret encryption keys (if any) shall be kept in safe custody of the Purchaser and also fed in by authorized personals of the Purchaser only and shall not be disclosed to operation & maintenance personal of the SI. In case of compromise of the keys due to any reason there should be provision to generate/ define new keys and same treatment be done. For the purpose of testing the communications lines there should be separate provision. For clarity purpose it is asserted that, where modem/DCU/converters are separate from the meter, the same shall be enclosed in a proper sealable panel/box along with meters so that no one can tamper even with the connecting cables of these devices. Additional cost in this regard may be build up in the price bid.

9. Which ever solution is offered by the SI, the complete schematic, topology with all equipment and detailed literature of H/w & S/w of the offered system should accompany the proposal. Details and specifications of the offered equipment should also accompany the proposal.
10. Communication connectivity charges to be indicated in the bid are ceiling prices for the purpose of payment of connectivity charges to the service provider. Connectivity charges shall be paid to the communication service provider as per the TPA on actual basis which shall be reviewed on yearly basis or as per tariff revision whichever is earlier. In case the actual connectivity charges are more, the difference shall be borne by the SI.
11. Vendor shall be responsible to update the bandwidth needed for CEC in case the same is found to be inadequate subject to acceptability/ approval of the purchaser.

5.4 Computerized Energy Centre (CEC)

5.4.1 Introduction

The complete implementation of Computerized Energy Center shall be in the scope of the SI, as specified. While supplying the CEC sub-system it must have the at least data acquisition system and data storage system with basic reporting/ MIS, online displays/ graphs, basic frame work for ABT Scheduling/ UI Billing/ Grid Losses calculation etc. Rest of the functionality/ features will have to be developed by the selected SI before the supplied system shall be declared successfully commissioned.

5.4.2 General Requirements

1. The SI shall implement the proposed Centralized Energy Centre (CEC) to be tentatively located at SLDC, Ablowal (Patiala). The CEC shall collect the data from ABT & Conventional Meters and display/ store/ process the same as per the requirements of the Purchaser specified in this RFP, which may come up during the interaction with end users and/ or requirements which may evolve subsequently throughout the implementation and/ or the O&M periods.
2. The CEC shall acquire the online and stored data from ABT & Conventional Meters and collect Scheduling information from System operators and display/ store/ process the same as per the requirements of the Purchaser as specified in this RFP. The stored meter data e.g. load survey, parameters, tampers etc should be downloadable as and when possible automatically or as desired without affecting the online data communication. All the data being received from the meters should be stored in a database for further analysis & record to monitor power supply status of individual feeders, power supply conditions, hours of supply, violations besides Value Added Analysis as may be required. Further Settlement System based upon ABT regime and grid wise and feeder/ transformer wise loss calculations shall be an integral part of the Project.
3. The SI shall define offered system's hardware configuration, its specifications and other requirements of the above hardware to meet the overall objectives of the proposed system. The Purchaser's visualization of system is as shown in the Annexure-III. The CEC shall have server grade machines, workstations/ consoles, peripherals and laser printers (at least one printer of A3 size, one high resolution colour printer, one duplex printer, besides other printers for bill printing etc), Ethernet switches, routers, web server, etc. with latest versions. For various activities/ functions/ features etc. a number of Servers & Consoles have been indicated in the schematic. These number shown are only indicative, Single/ less number/

more number of servers may accommodate number of features/ functions etc. and as such number of these required may be more or less, as per the solution offered by the SI. However number of workstations/ consoles etc required initially is indicated in the BOQ as far as GUI/ MMIs are concerned. Normally it is expected that operators will work on independent Consoles/ Workstations and servers shall not require direct human intervention except during maintenance activities.

4. What so ever solution is offered by the SI, the complete schematic and detailed literature of the offered system shall accompany the proposal. Details of specifications of the offered equipment shall also accompany the proposal.
5. The CEC system proposed by the SI should comprise of all the necessary hardware & software which may be required/ suitable for all the functions/ features as has been described & visualized in the RFP, along with any additional system/ component etc. as per SI's own experience in implementing such systems. Intention is that further development required if any, which may come up during interaction with the Users after award of Order and during finalization of URSs (User Requirement Specifications) and DFRs (Detailed Function Requirements) etc, before commissioning, it should be possible to be fulfilled by customization only or SI should have capability & capacity to write custom programs/ queries to implement these UFRs/ DFRs without the need for additional hardware/ software systems. If any additional need for extra Hardware and/ or third party software arises before commissioning of the respective systems than it shall be the responsibility of SI to provide the same at its own cost. At the minimum CEC system must have suitable servers & consoles as described herein along with capacity and capability of Hardware & Software i.e. detailed technical specifications in terms of RFP requirements.
6. All the critical components/ server functionalities at CEC should be in dual redundant hot standby configuration as may be required to achieve specified Service Levels. Some of critical components/ server functionalities are Communication Front End Server/s, Data Processing Servers, Database servers along with databases, ABT scheduling servers, ICCP servers, web server, LAN etc as the failure of any of these shall severely effect the overall functioning of CEC. Any failure of these critical items/ functions should automatically be taken care by dual redundant system.
7. Any requirement of additional hardware or third-party software which may be required for fulfilling the different requirement after commissioning of the respective components at CEC shall be provided by the Purchaser/ SI at mutually agreed cost, terms & conditions. Such suggested third party hardware & software should be easily available and the SI or any other party shall not be carrying exclusive rights on the same or debar it in future.
8. The basic features, functions, reports etc to be made available at CEC as visualized at this instance of time are given in this RFP. For detailed functions/ features/ reports etc the SI shall interact with the end users of the system to understand their requirements (UFRs/ DFRs), and also freeze the same in consultation with the Purchaser and thereafter implement the same as part of commissioning process and/or before commissioning. Purchaser shall facilitate such interaction as and when desired by any side.
9. CEC solution offered should not be dependent on the selected mode/ media of Communication. It should be possible to change the communication media may be with minimum changes, if ever such need may arise with the availability of better & economical communication media,. Such changes required should clearly bring out in the proposal. Further CEC software shall be capable to handle data from all meters and shall be meter manufacturer independent.

10. The solution offered by the SI shall be scalable and capable of integration with other applications/ systems of PSTCL. The SI shall also provide an Interface to integrate the CEC database with the third party billing applications also (in addition to the Billing application that is required to be supplied by the SI as per this RFP) as and when required. Further it shall be possible to exchange the data with already commissioned EMS/ SCADA system through ICCP Protocol (or as may be required later on). However the present bid must include the cost of implementing such exchange of data functionality with SCADA/ EMS through ICCP server. Interoperability, database details/ charts, all requisite documents, tools, converters, etc. shall be supplied by the Purchaser.
11. The proposed solution must ensure adequate data security, data storage and system redundancy.
12. The SI must specify the time requirements for developing various changes/ services sought by the Purchaser from time to time as the system will evolve.
13. The CEC end system should be sufficiently capable to accept better refresh rates than specified, even less than 10 second.
14. CEC software should be capable to handle data (remotely and/ or imported through CMRI) from all meters, may be by use of converters, APIs etc. and CEC shall be meter manufacturer independent. Details required from third party meters must be specified in the proposal.
15. The SI shall ensure that the software solution provided for the System shall have the provision to maintain a "Unique Network Identification Code" (UNIC) for each metering point using suitable indexing methodology preferably easily understandable & logical nomenclature (which may be got approved from purchaser before implementing). The SI shall also be responsible for regularly updating the UNIC as and when there is a network expansion.
16. The RMR System and web based Application software should be capable generate meaningful reports, as defined by the PSTCL from time to time on
    a) All the requirements of Availability Based Tariff scheme as prevalent in PSTCL suitable for SLDC Operations & responsibilities
    b) All the requirements of Intrastate Transmission Energy Audit for calculating the line losses, Grid wise losses etc. of all the substations of PSTCL.
    c) Schedules/ Bills/ UI Calculations for individual consumers/ Discoms/ Gencoms and provision for reconciliations with payments made/ received.
    d) Tie-line break downs and interruptions. Supply status monitoring of these Transmission line.
    e) Load survey data from these lines,
    f) Actual energy wheeled by PSTCL.
    g) Total Grid losses of PSTCL.
    h) Actual machine wise generation from all state generating plants.
    i) Actual Energy sent out (ESO) of all the state generating plants.
    j) Gross generation from IPPs/ CPPs and other smaller generating plants shall also be available.
    k) Meter tamper reports, Exception reports
    l) Etc.
17. The system shall have the capability of converting the load survey data into text, ASCII, CSV, TSV formats as desired for hassle free integration with other applications. The system shall provide interactive graphics package, which allow getting graphical presentation of

load profiles, peak demand, load factor etc for a specified period. Interactive display characteristics like line graphs, bar chart, pie chart etc shall be user selectable.

18. There should be software utilities etc. such as Dynamic Data Exchange (DDE) and/ or Real Time Data Function (Microsoft Excel) available in the CEC Subsystem to link real-time data coming from meters to Microsoft Excel and other third part applications. It should be possible to connect Purchaser's PCs, etc. into the LAN/ Switch of CEC system to access database and Real-Time data through DDE, NETDDE, RTD, SQL Queries etc.
19. Site preparation/ conditioning, cabling, UPS, furniture, racks, panels, fixtures etc. as may be required. However Site/ Room with false flooring & Air Conditioning pre installed will be made available by purchaser. The SI shall provide a layout plan of the CEC & other equipment locations indicating the space requirement. Purchaser shall provide the required site/ room for the same. However, the SI shall be responsible for the site preparation including providing reputed make furniture / furnishing, electrical, earthing and minor civil work (if required) for CEC.
20. Any Licences/ Subscription shall be procured in the name of PSTCL by SI. However, to operate & maintain such items full responsibility shall be of SI during Implementation & Comprehensive O&M Phase.
21. It should be possible to integrate such manually collected data from now supplied CMRI & data collected by existing CMRI in PSPCL, with the CEC applications i.e. billing/ UI/ analysis etc & database with suitable indication in the consolidated reports that data of such and such meter was downloaded with CMRI and/ or was manually entered.
22. As already stated there are many Open Access (OA) Customers of PSPCL (Punjab State Power Corp. Ltd.) having different makes of ABT Meters (M/s Secure, M/s L&T, M/s Wallaby), which though may have remote communication possibility/ ports but are still being manually downloaded through CMRI (Common Meter Reading Instrument) and accordingly energy/ UI bills are being generated for them manually. These ABT meters were/ are being procured by Open Access Customers themselves and were/ are being installed at their respective premises. Proposed system shall have necessary provision for integrating Open Access customers' provided ABT meters with the CEC as and when desired by PSTCL if found viable may be by putting up additional protocol converters, APIs, etc.
23. Existing CEMs at 400kV, 220 kV and 132 kV substations of PSTCL are to be integrated with proposed CEC system if found viable/ feasible by putting up protocol converters, APIs, etc.
24. There should be provision of entering multiplying factors to scale the raw data received from meters to engineering values as may be required. Further there should be provision to enter correction factors to cater for meter data available from some alternative location/ interface point instead of from the desired location. For example instead of requirement of meter placement on LV side of a Power transformer, it is placed on HV side due to non availability of metering CT on LV side, or instead of placing the meter at far end as may be required the meter is placed at near end of the transmission line/ tie-line due to non viability of placing it at far end, data available from Check Meters etc. There could be many such contingencies as such CEC software must have the facility to correct the meter data being collected from alternative location by a suitable factor. Such corrections must be indicated in reports etc.
25. Original Meter data collected in the database should not be modifiable/ alterable/ delete-able and should be always available. However if any need for correction is required same shall

be possible with logging of such changes done. Even then original data should be always available. Further processing should take place on changed/ corrected data with suitable indication in end results/ reports, but still original data from meters should always be available. This is required to maintain data integrity because high value monetary transactions shall take place based upon this data and necessary safeguards need to be implemented.

26. The CEC shall be capable to configure data collection time, type of data to be collected, number of days of load survey data and tamper events as per user requirement.
27. Database should be able to store data from meters and processed data shall be kept for say 5 years with suitable automatic backup at some suitable remote location for disaster recovery. Further it should be possible to do data backup & restoration to/ from DVD/ Tape/ External HDD based storage devices. It shall be the responsibility of SI to do disaster recover, backup, restoration procedures as and when required.
28. The CEC shall have the capability to modify the various parameters/ configuration of the communication equipment remotely. CEC shall have suitable NMS system to identify the faults/ problems/ bottlenecks etc. in the smooth working of the whole system.
29. In the event of meter data not reaching the CEC due to the failure of RMR, the SI shall be responsible for providing meter data through (Common Meter Reading Instrument) CMRI to the Base Computer Station and the BCS shall have the provision to accept, update and process the data from CMRI. The SI shall be responsible for providing the required number of CMRIs and placed at suitable locations so that in case of need for manual downloading a CMRI is available in the substations or at a nearby substation. Locations of such CMRI may be freezed by SI in consultation with Purchaser. However manual data downloading responsibility and integration of such downloaded data in CEC shall rest with SI. Suitable assistance may be provided by Purchaser which may be discussed and freezed.
30. The SI shall provide the latest version of the CEC software. Any up-gradation / modification of the software in the latest versions shall be delivered & implemented, either free of cost or if cost is involved in such up-gradation than on cost to cost basis in discussion/ agreement with the Purchaser. While offering to do so SI shall clearly bring out changes it will introduce in the commissioned system. However, if Purchaser is not willing to accept the new/ latest system and SI still feels that it will be helpful/ economize its own O&M operations than SI may be given go ahead subject to no cost to the Purchaser and minimal shutdowns of the CEC system/ sub-systems.
31. The CEC system/ software should be capable to acquire data from existing ordinary/ Conventional (non-ABT) Energy meters, any IED, etc in the similar fashion and it should be possible to send commands/ text to such devices for execution/ display, as and when required for producing more detailed/ comprehensive functions such as line wise losses, Transformer-wise losses, energy audit, Rotational Load Shedding schemes, displaying some messages remotely etc. as and when desired/ required by Purchaser. As such CEC system/ software should have functional capability similar to an SCADA system and it must be possible to run different applications may be in real-time and/ or in offline mode, to integrate some new applications as and when required.

5.4.3 Proposed Architecture:

It is the responsibility of the SI to propose the suitable Architecture. However as being visualized by the Purchaser the proposed Architecture of CEC Sub-system for Intrastate

Boundary Metering Project is as per Annexure-III (b). The detail of the some of the devices in the visualization is as follows.

(i) **Communication Front End** shall acquire data from the meters and send the same to the Main Data Processing server and as such concentrate no. of communication lines into a single interface to reduce loading on data servers. It shall be supporting the number of channels for concurrent automatic communication with all specified number of meters for acquiring instantaneous parameters in real time meeting the specified refresh rate from specified number of locations. It should be possible to achieve the specified data refresh rate from all the meters simultaneously in respect of time stamped instantaneous/ Current Block/ Current Day Instantaneous parameters as specified, may be by transmitting/ receiving only those parameters which changes by a particular threshold value (should be programmable for individual parameters) and by routinely undertaking a demand scan automatically to check data integrity every few minutes, so as to optimize the data volume to available channel bandwidth along with routine & secure downloading of offline/ stored data from the meters for Analysis/ energy accounting/ billing/ UI/ Grid Losses Calculation etc. as may be desired, automatically as per schedule or on specific requests from the control centre. More than one communication gateway servers can be installed at CEC to handle the growth of metering points as the system may expand. The communication shall be performed as per the communication protocol specified in the Meter Specifications for remote communication. CFE Servers should also have the capability to query the other meters which are already provided by OA Customers/available at existing substations of PSTCL or may also be installed in the future by the Purchaser through suitable interface devices/ converters/ software APIs.

(a) CFE should have necessary capability to feed Network Management Servers (NMS) for logging/ alerting the operators in respect communication faults/ malfunctions so as to generate alarms and to calculate the availability of respective channels.

(b) CFE should not be dependent upon communication media selected. May be only interface devices at CFE end and/ or at remote end be required only to be reconfigured or changed.

(c) It shall be able to accept, authenticate and resolve communication request received from multiple communication equipments at the same time. It can also be used to control and monitor multiplexer/ concentrators/ modems etc. if any available at the remote location.

(d) Being critical to the CEC it should be in dual redundant, hot standby configuration.

(ii) Data Processing Server (DPS): All the data being received from CFE and ICCP (as and when implemented) shall come to DPS and stored in databases. Gross data acquisition is the responsibility of CFE. But DPS should have the intelligence to locate the gaps in data (especially in Meter Stored/ Survey data) to issues selective data acquisition to CFE, which may further acquire the data from the selective meters. DPS shall also do calculations, aggregations, corrections, processing, generating alarms, real-time UI, Grid Losses calculations, etc. in real-time. DPS shall also validate the data provided by the communication gateway server, generate alarms, route the data to the data storage server. Data calculations, data combinations and special processing for different data types shall also be performed. Different types of Alarms and events from energy meters shall be processed and necessary acknowledgements to the intermediate devices shall also be sent. Data for different processes/ applications running in the network shall be segregated and saved in respective database. It shall also provide of screens/ displays/ Single Line Displays, etc for pictorial representation of substation data, viewing of complete real time meter parameters both power and energy on user

screens, real time trending, alarm displays, etc. It should also be able to identify the data being received from ABT type meters & Conventional Energy meters and shall send it to the corresponding repository/ tables. Being critical it shall also be in dual redundant hot standby configuration.

(iii) **Data Storage & Data Base Servers:** Data storage server shall be used to perform Information Storage/ archival and Retrieval functions. It shall operate in a primary-standby redundancy mode i.e. if primary server crashes the standby automatically takes over it. Data storage server shall also perform the task of taking backup on the external storage devices (such as disk arrays, tape libraries and optical jukeboxes etc.) connected in the network in such a way that the devices appear as locally attached to the operating system. Preferably Storage Area Network may be used for different servers running distinct applications to increase the storage capacity utilisation and for easy and fast accessibility/ availability of the data over the network. It shall also be possible to recover the data from external storage in case of failure of server. It shall also be capable to receive & process simultaneous request from multiple users for generating and managing different types of specified reports e.g. historical trending etc. The database should be relational data base which should be queried through SQL etc and should be suitably sized for complete data storage

(iv) **ICCP Server:** The ICCP servers shall be used to handle the inter control centre communications functions between CEC and proposed Integrated SCADA/ EMS Scheme control centre as and when it come up. The ICCP link shall be designed to allow data exchange over communication network between different control centres. The ICCP server shall be able to interact with multiple clients in parallel. Through it meter data which shall be available now through this Project shall be sent to SCADA/ EMS and vice-versa, when meter data shall also be available through SCADA/ RTUs. Purchaser's visualization of such interconnectivity between CEC & SCADA/ EMS system and Meter & SCADA/ RTUs is shown in Annexure-II. It should also be in dual redundant hot standby configuration.

(v) **Development Server/ Consoles:** The Development server shall provide the software utilities, tools, compilers, display builder application, debuggers, report configurations etc. to be used to develop and maintain the system software, displays, databases, etc.

(vi) **Network Management Server/ Consoles:** The Supplier shall provide Network/ Configuration Management subsystems to monitor all LAN, servers, consoles and meter communication & remote equipment activities. All status changes associated with communication devices, remote end equipment, servers or workstations, LANs, user interface equipment, time equipment, and support peripherals shall be initiated, monitored, logged and controlled via suitable displays and/ or tables. It should be possible to calculate availability of various systems/ sub-systems, components etc achieved routinely. Appropriate events shall be issued for configuration changes.

(vii) **Scheduling Server/ Consoles:** This server/ console shall be dedicated to managing the Scheduling activities suitable to Availability Based Tariff Regime as may be adapted in Punjab from time to time as per the policies, regulations etc. fulfilling the responsibilities of an SLDC. Scheduling server/ console shall maintain/ preserve/ control the databases relating to day ahead, current day, implemented schedules, scheduling transactions, interactions, schedule revisions etc between various utilities being served by PSTCL/ SLDC. Interface to the Operators shall be through Operator Consoles, website, fax/ manually etc. Scheduling Consoles shall be used by Scheduling Operator at SLDC to authenticate the final schedules, other settings etc. It shall help Load Dispatch

Operator of intra state utilities to define the schedules for various entities after proper authentication and shall also generate the real time/ historical trends of schedules with parameters like current load, current drawl etc. Operator shall also have screens for selection of different parameters to generate trends, graphs and tabular data relating to scheduling etc. Being Critical it should be in dual redundant hot standby configuration. Further, ABT Billing software running on the servers shall generate ABT related energy accounting and settlement reports on periodic basis.

(viii) **Billing Server/ Console:** Billing server shall maintain data regarding billing, collections, reconciliations etc. suitable to ABT Regime as adapted in Punjab from time to time between intrastate utilities being served by PSTCL/SLDC. Billing server shall also maintain the accounting of UI energy charges, Reactive energy charges etc. on the pattern being followed by NRPC/NRLDC, New Delhi (www.nrpc.gov.in & www.nrldc.in).

(ix) **Local & Remote Consoles:** It should be possible to selectively/ area wise disseminate the online data, in real-time & offline data from CEC and also to & gather information (e.g. ABT Schedules, etc.) from operators by providing Operator Consoles (local & remote), in the control centres of various entities/ utilities situated locally at CEC and/ or at remote locations through some sort of VPN may be through Internet/ shared media or dedicated. Number of such operator consoles can be increased to 50 number or more as and when required in steps. However, initially minimum 4 local and 2 remote consoles shall be provided and quoted for along with communication media, with suitable bandwidth etc. All Consoles/ workstations should be large monitors (19" or more).

(x) **Web Server:** The CEC should have suitable web server to host integrated website suitable to selectively disseminate real-time data available in the CEC, publish schedules, revisions, UI, meter data, etc and collect schedule requests and other information from utilities and other information from within/ outside the PSTCL. The Web Server shall have the suitable/ capability/ software to allow at least 500 multiple users with response time of few (5 s) seconds. Purchaser already have two number website hosted at SLDC, Ablowal. It should be possible to use the same domain name so that SLDC have/ appear to have consolidated web site. Web site shall also have provision to unload ABT Meter data collected manually using a CMRI from any web enabled PC with suitable interface to CMRI. The website shall provide online & offline data through password protected pages, which shall further be displayable/ browse able on mobile phones, handsets, Personal Computers, Laptops etc which may be connected to Internet. Website shall also be used for interaction with the general public and Purchaser's customers for ABT Scheduling and Energy/ meter Data dissemination, payment/ bill collection/ disbursal etc.

(xi) **GPS Time Synchronization system:** A Satellite based True Time GPS (Global Positioning System) clock along with its accessories shall be implemented at CEC. It shall be used to synchronize CEC's time with standard reference time via satellite so that synchronization of servers/ clients in CEC is possible on continuous basis. The Data Server/ CFE shall in turn synchronize the time of all the meters while acquiring online data from them. As such it should be possible to time synchronize the ABT Meters remotely through CEC where GPS time facility shall be available and later on through SCADA/ RTUs also where local RTU level GPS time systems shall be made available.

5.4.4 Software Requirements

The format of the Reports, Displays, User Requirement Specification (URS) and Detailed Functional Specification (DFS) shall be decided after the award of contract in consultation with the end users. For this purpose, SI shall discuss and propose various features & functions available in the system and discuss and understand the end users requirements. However as visualized at present the system shall have following or equivalent functions & features.

Entity Management

The system shall be able to define different entities, units, Discoms, Gencoms, Transcos, OA Customers, substations, CPPs, IPPs etc with multiple interface points behaving as one. An entity can have interface with any other entity and/ or with other states, CTU, BBMB etc. The definition shall be hierarchical and logically inter-related in database also. The definition of such entities shall include various data attributes i.e. station name, address, installed capacity, type of generator, agreed capacity, standard auxiliary consumption, heat rate etc. which ever is required.

Metering Location

Each actual metering location shall be identified by a unique name. There may be main meter, check and back-up meter for same meter node/ location and the proposed system must be able to resolve these ambiguities by assigning suitable priorities. Each of these meters shall also be uniquely identified in the software. It shall be possible to change the name of the location without affecting the energy measurement and calculation. On any given location assigned meter can be changed and for the software the location will remain the same. Further reports for the location shall be generated with the changed meter data. The location–meter relationship shall have to be maintained for secure and reliable measurements/ Bills/ UI/ Grid Calculation.

Load Monitoring

The load-monitoring module of the software shall provide graphical as well as tabular display of various parameters of the feeders/ meters interconnected in this system. Entity wise Feeder analysis screens shall be available in Single Line Diagrams, tabular, Graphical forms simultaneously. Collection of readings from each entity/ feeder on continuous basis shall be plotted against the background.

It should be possible to have multiple online real-time trends. It should be possible to have comparative trends with available history data.

The readings should be available with elapsed time during the current demand integration period of 15 minutes along with scheduled energy entitlement during the same 15 minutes.

SIs will have to consult the end users to solicit/ understand the exact requirements of display formats.

Active, Reactive and Apparent parameters shall be available for monitoring in the form of energy as well as demand based. In addition to the above parameters, on-line monitoring for (Active demand) scheduled, current, predicted and suggested values should be made available.

The SI shall provide display generator, which enables user to create or reconfigure various screens & graphs. The user shall be to able to configure various parameters (energy / demand) to be displayed on the online monitoring screen.

The System Operator/ Power Controller should continuously be able to monitor ex-bus generation and inter-utility power transfer for every current & historical 15 min block online.

Apart from individual feeder monitoring, the software shall provide for monitoring the summated generation/ load for a group of meters. The user shall be able to define the configuration of meters for this summated data.
Alarm conditions of the feeders shall be made available on online screen – these alarms are basically the anomaly conditions as logged by the meter like PT miss, under voltage, tamper conditions etc.
Besides general alarm conditions shall also be displayable in case of failure of any equipment/ communication.
Apart from meter alarms, user defined alarms shall be made available based on limits defined for various parameters.

Load Scheduling
The module shall be used to prepare & revise the schedule for various entities so as to be given to the SLDC meeting the ABT system. Schedules shall be possible to be entered by respective entities through proposed web site, remote consoles or it should be possible to be entered manually. The module when initiated shall allow user to enter the schedule data (scheduled generation and import / export) for each 15-minute integration period using a graphical user interface window. The schedule shall be represented in tabular as well as graphical format. The schedules shall be stored for any further reference by the user.
It shall be possible to collate individual schedules of generation and interface points to a single schedule and it should be possible to be emailed/ fax the same to specified recipients automatically once go ahead is given by scheduling operator.
The user shall be able to configure the collation and grouping of meters for preparing various schedules.

Report Generation
The software shall have module to customize and generate various type of reports based on data collection, data validation, estimation, UI Charge, Scheduled and Actual, events, communications and logs. The different type of reports required to be generated for preparation of intrastate energy account, shall also be as per the pattern being followed by NRLDC, New Delhi (www.nrldc.in).
Unscheduled Interchange (UI) report shall be generated based on the data for the agreed schedule and the actual generation (data as acquired from meters).
User will be provided with the facility of entering UI rates as and when required. Previous UI rates shall be also accessible.
Summary as well as detail (each 15 minute) report shall be made available for UI. Incentive/ Penalty statement shall also be made available based on rules entered by the user. Further, total export/import report and plant load factor report shall be generated by this module. The system shall be able to generate report as per the requirement of transmission level energy audit e.g. Energy Sent Report, Energy Loss Report, Line Loss report, Grid Wise Loss report etc.
The system shall also integrate with a commercially available reporting package, such as Crystal Reports, to allow generation of custom reports for unique operational requirements. It should be possible to query data into Microsoft Excel for any special reports. Standard system reports shall include reports for use in the analysis of data, and the operation of the system.
Reporting tools shall offer users the option of exporting reports to disk using a variety of standard Windows formats including, at least, CSV, PDF, Word, Excel and rich text format.

Date selection

When running a report by date span, the system shall provide users with the option to enter specific start and stop dates, or to run reports using standard time scales such as Today, Yesterday, Week To present Date, Month to present Date, Year to present date, Last Seven Days, Last thirty days, Last Week, Last Month, Last Quarter, Last Year
The format of the reports shall be provided at the time of defining User Requirement Specification (URS) and Detailed Functional Specification (DFS).

Historical Data
This module shall provide archive historical data i.e. load survey data (for each 15 minute interval) for various parameters (as configured for meter) as stored by the server.
The data as acquired online shall get shifted to historical database on a continuous basis and shall be made available in graphical formats for various energy / demand and frequency parameters.
This module shall also make available schedule values for each 15-minute interval for virtual meter as defined by user.
The data shall be made available in graphical format (daily / weekly / monthly views) as per user selection.

Auto Read Utility
This module will provide for acquiring missed load survey data from meters in case of failure of communication channel for on-line data. It shall also be possible to download the data to laptop or Meter Reading Instruments. It should be possible to integrate such downloaded meter data with the normal system/ historical data.
The SI shall provide software & hardware necessary for receiving data from MRI and downloading the same to Central Server. It shall be possible to integrate the data collected from meter seamlessly with server data.
Billing/ UI/ Grid Loss Calculation Software
The CEC shall have the provision to provide required inputs to the Billing/ UI/ Grid Loss Calculation software for generating bills of ABT consumers as per the User requirement.

Third party interface
The ABT software shall have provision for interfacing with third party software. For the above purpose, software shall support XML, OPC, ODBC interfaces.

Other/ General functions & features
CEC shall have the capability to synchronize date and time of all meters with available GPS system at CEC.
The CEC shall have the capability of alarm system for any tamper event, excess demand registered by the meter and other required alarm parameters.
The system shall generate alarm as Communication fail in case of failure of communication system.
Comprehensive Tamper report with option for Tampers, Tamper Durations, Filter Tamper and type of tamper for quick snapshot of errors in the system.
The CEC shall be able to schedule the meter reading remotely. Flexible scheduling of meter reading shall be provided by CEC automatically on a pre-selected daily, weekly or monthly basis.
The Software must allow for designing Menus, Keyboard shortcuts, Schedulers, Event objects.
CEC shall have the capability to produce the data in the user required data formats.
CEC shall be scalable in Hardware and Software terms to cater to the increase in requirement

The software shall convert the data received from meters into a database which will cover the following aspects:

a) Details of the meter and metering equipment
b) Calendar Clock (duly stamped).
c) Instant parameters
d) Load survey
e) Billing data
f) Tamper information
g) Transaction log

The MIS Report generation at CEC shall be as per the user requirement from time to time.

SI shall provide user manuals for the CEC software and software shall also have the feature of HELP for user convenience.

5.4.5 Data Management & Validation

1. Whenever data is collected, the system will automatically validate the data collected by defined data validation rules.
2. During communication with the meter, the system shall, Verify that the device ID of the meter matches the device ID stored in the system and that the clock of the meter is within a maximum tolerance compared to the standard time of the collection system.
3. SI shall describe in detail the proposed Database Management system's design and architecture for effective management and analysis of data received from all the meters through provided communication or through CMRI.
4. CEC shall perform all the validation checks as per user requirement to ensure the data correctness.
5. CEC shall due the initial billing calculations with Main Meters and present the overall results and also indicating differences in Main & Check meter if these are higher than the thresholds defined collectively and/ or individually. Provision should be there to substitute Main Meter readings with Check Meter readings or some other readings manually if desired by authorized representative of the Purchaser clearly indicating the same on the reports/ bills thus prepared. Such activity shall also be logged in the database.

5.4.6 Reporting Requirements

1. The system shall be able to generate various exceptional reports on tamper events and energy data.
2. Acquire real time instantaneous data like voltage, current, frequency, power factor, active power, reactive power, etc. at the specified regular intervals as defined by the Purchaser from time to time.
3. On-line data shall be presented in Single Line Diagrams (SLDs), Tabular format, Graphical formats, Continuous Trends and other the user defined formats from time to time. Necessary Display & report Builder system shall be provided by the SI.
4. It should be possible to compare & view historical & current data for defined periods simultaneously on single screen for forecasting purpose.
5. Viewing/ comparing the historical/ recorded parameters in graphic format.
6. This software shall provide facility to define threshold on the electrical parameters and store them in a database and whenever it finds the limits are exceeding while polling alarms may be generated at the Operator Consoles. Facility to acknowledge one or multiple alarms at a time and also facility to save the alarm shall be provided.
7. It shall show and transfer data in case of change in meters. An indication of meter changed shall be available in the reports/ bills and separate record shall be maintained to avoid any confusion.

8. The CEC system must have drivers specially defined for Electrical applications like Modbus RTU, TCP and IEC protocols. The networking between server and client should be highly efficient. It should also have the capability to export data to other applications in standard formats like XML, CSV.
9. The software shall have provision to generate hierarchical reports (i) Customer wise (ii) utility wise (iii) interstate (iv) intrastate groups, up to individual meter wise etc as desired by the purchaser from time to time.
10. Apart from the above mentioned reporting requirements, the software shall have capability to generate following type of reports
    a) Meter Data Report
    b) Meter Replacement Report
    c) Consumption Data Report
    d) Voltage Data Report
    e) Interruption Data Report
    f) Demand Data Report
    g) Feeder wise Line Losses & Grid wise Losses Report
    h) Etc.

However SI shall be required to define any specific report format as per the requirement of the Purchaser. The detailed formats shall be finalized as per the user requirement. All the reports shall also be provided in soft copy on CD.

5.4.7 Security Requirements

1. The system shall provide an integrated security system that allows administrators to create users and grant those users permission to see / operate the system / data, tamper conditions.
2. The system shall allow administrators to create groups of users with the same permission set. All users assigned to a given group shall have the same permissions at the system level.
3. Multi-level configurable password control with complete event logging (Audit Trial).
4. Access to the system must be authorized by and authenticated ID and Password security.
5. The system shall be capable of conducting Audit trail of users and system activities and ensure integrity and complete confidentiality of the data.
6. Safety methods must allow for Electronic Signature and Audit Trail management for every event in the system and must support lockable desktop access. All Access rights are based on hierarchical levels and access areas.
7. Electronic Signature, tampering, sniffing attempts guarded against, password expiry control, automatic log-off, Audit Trail management, encrypted data recording should be supported by the Software Security system.

5.4.8 Sizing & Scalability of CEC

Communication front end (CFE) functionality at CEC end sub system being implemented should have capacity to accommodate minimum 2000 number of meters (both SEMs & CEMs) initially as proposed/ specified in the RFP. However the CEC system except Communication front end (CFE) functionality should have the capability to handle /accommodate data for at least 10000 metering points, located at more than 1500 locations without degradation of performance. The expandability of Communication front end functionality should be scalable to at least 10000 meter points from 1500 locations in increments by addition of modules as and when required on addition of new meters at new locations. No database or CEC software or additional hardware should be required to be added except additional modules in respect of Communication front end functionality and must be indicated clearly in the bid. The bidders must also indicate the minimum CEC end system required in respect of CFE functionality.

5.4.9 Relational Database Management System

The system must store the data in a relational database that also has the capacity to manage the objects and data. It is required that all the instantaneous data coming from meters should also be stored and retrievable for future reference. Online data storage for at least two years is required and offline data storage for indefinite period is required. All the real-time data coming from all the field devices and/ or being generated/ calculated in CEC (i.e. scheduling interactions etc.) should be possible to be stored in data bases/ compressed files/ backup devices/ may be in offline devices. Necessary utilities to retrieve the same as and when required should be available and provided.

5.4.10 Data Versioning and Data Integrity

1. The system shall provide fully versioned data system that tracks and maintains both 'corrections' and 'changes'.
2. True changes that naturally occur over time, such as meter changes, multiplexer changes, location changes etc., shall be tracked over time with effective dates, and the appropriate values shall be used for each effective time range in all reports, exports, and calculations, including seamless handling of request time frames that cross change boundaries.
3. All corrections of data shall be maintained in the system, including the maintenance of multiple versions when multiple corrections have been made to the same data.

5.4.11 Operation & Maintenance Support

1. In the early stages of the project the SI shall provide a brief training to Purchaser's nominees and associate them with execution works. Prior to the commissioning of the system, the supplier shall provide comprehensive training to the purchaser personnel on all aspects of the system including design, programming, operation, report generation and troubleshooting.
2. Comprehensive O&M contract including various services to be provided as per this RFP, shall be for a period of 7 years from the date of successful commissioning. For this purpose supply and deployment of necessary man power at the CEC of the Purchaser and necessary development engineers, Service Engineers, support personals shall be the responsibility of the SI.

5.4.12 Software Licenses

All supplied software such as Operating Systems, Applications for servers/ clients; database, antivirus etc. shall be suitably licensed/ authorized in the name of the Purchaser. All software including CEC sub-system shall be handed over to PSTCL at the end of Comprehensive O&M period or as and when may be decided by Purchaser and no licensing fee should be payable expect for recurring charges and/ or subscription charges, etc. that too in respect of anti-viruses, etc. only and not in case of main system/ software, thereafter. Any deviation must be specifically brought out in the deviation sheet.

6 PROPOSED IMPLEMENTATION PLAN/ SCHEDULE

The work shall be completed within nine months from the date of entering of the Contract Agreement by the System Integrator as per the following schedule in stages.

Within one week of contract award (i.e. issue of letter of intent / LOI), the Vendor shall submit a detailed PERT/ project schedule for Purchaser's review and approval. The project schedule shall include all tasks to monitor overall duration, direction and integration of the project from inception to completion. The actual progress made to date and the schedule delivery date for the completed systems shall be closely monitored by Purchaser.

The implementation schedule shall summarize all activities, and shall include but not limited to the following:

- Collection of basic field data for the whole scheme i.e. for around 1100 meters (700 ABT meters & 400 Conventional meters at around 220 locations).
- Submission of final Meter list
- Design drawings etc for Purchaser approval
- Hardware purchases, production, development, integration, etc.
- Hardware production schedules
- Factory testing and/ or Inspections
- Documentation preparation and release
- Documentation revision and release following Purchaser comments.
- Training schedule.
- Shipment, Receipt, forwarding and staging
- Site preparations, field adaptation jobs
- Installation, Field testing, commissioning and system integration
- Site availability tests, Guaranteed Availability Tests, Performance Availability tests as may be applicable.
- Completion/ commissioning of sub-systems & project as a whole.
- Submission of manuals and final /as-built drawings.
- Integration of existing Conventional Energy Meters
- Comprehensive O&M and completing the remaining works which were deferred (i.e. ICCP Server, OA Customer meter integration as may be required by PSTCL, etc.).

Each scheduled task shall have an estimated duration for completion and predefined relationships with other tasks. Relationships shall be used to enforce the logical progression of work such that certain tasks cannot start until others have finished.

6.1 Proposed Stages/ Milestones/ Schedule of Implementation

Stages/ Milestones	Days / Months	% of Work	Description
1	1st Month	100%	▪ Resource Mobilization ▪ System Study ▪ Basic initial introductory training to Purchaser's nominees. ▪ Field Survey. ▪ Complete Identification of metering points required/ finalization of Number of ABT/CEMs Meters to be installed/ required under 2A/2B & 3A/3B Milestone(s) for calculation of Energy Input, Energy Output & Grid Losses.

			▪ Interaction with the Users, URSs (User Requirement Specifications), DFRs (Detailed Function Requirements) & Design and Finalization of Displays, Reports, Billing Specifications etc. and its approval. ▪ Defining exact H/w & S/w Requirements for the project ▪ Deciding about the location of CMRI.
2A	2^{nd} & 3^{rd} Month	100% of each	▪ First 50% of ABT meter Supply, Installation, Commissioning alongwith that of required communication Hardware, software, services, communication commissioning of respective meters etc. for data transfer as specified.
2B			▪ First 50% of CEM Supply, Installation, Commissioning alongwith that of required communication Hardware, software, services, communication commissioning of respective meters etc. for data transfer as specified.
2C			▪ Basic Infrastructure for CEC (i.e. Meter Data Acquisition process, Storage, Basic Reports)
3A	4^{th} & 5^{th} Month	100% of each	▪ Balance 50% of ABT Meter Supply, Installation, Commissioning alongwith that of necessary communication Hardware, Software, services, communication commissioning of respective meters etc. for data transfer as specified.
3B			▪ Balance 50% of CEM Supply, Installation, Commissioning alongwith that of necessary communication Hardware, Software, services, communication commissioning of respective meters etc. for data transfer as specified.
3C			▪ Establishment of CEC (essentially in respect of Grid losses calculations etc.)
3D			▪ Supply of CMRI & handling over of CMRI to the concerned.
3E			▪ Continued Interaction with the Users, URSs (User Requirement Specifications), DFRs (Detailed Function Requirements) & Design and Finalization of Displays, Reports, Billing Specifications etc. and its approval. ▪ Trial integration of already installed Conventional Energy meters. ▪ Trial Run of partially completed system.
End of 3^{rd} Mile Stone	**It should be possible to calculate PSTCL's Grid Losses using ABT meters being installed at the interface/ tie-line points between PSTCL and utilities being served by it preferably by 31st Mar 2012. The first priority should be of ABT meters so as to meet the deadlines & conventional energy meters may be installed subsequently and/or in parallel to ABT meter installation at the convenience of the bidder.**		

4	6th & 7th Month	100%	▪ Establishment of Complete CEC (Communication servers, Data servers, database servers, local operator consoles, basic reports (essentially in respect of Grid losses etc.) ▪ Establishment of integrated website for scheduling & information/ data dissemination etc. ▪ Establishment of remote operator consoles (alongwith communication etc.) and other consoles as specified/ ordered ▪ Detailed Training ▪ MIS report generation ▪ ABT Scheduling/ Billing etc. as may be specified. ▪ Any additional metering points as per the requirements of the Purchaser ▪ Integration of existing Conventional Energy Meters. ▪ Completion of Remaining works
5	8th Month	100%	GSAT & Successful Performance Guarantee for the whole system (of all the above milestones). Commercial Operation begins/ Project Declared Commissioned.
Note: 7 years of Comprehensive O&M services shall commence from the successful completion of GSAT Acceptance.			
6	9th Month	100%	Deliverables: ▪ As built Drawings ▪ Literature, Training Manuals, licences, ownership documents, any other document/ agreement etc. ▪ Balance works as specified

Note:

1. Subsequent to the GSAT/completion period of 9 months, the contractor/SI shall not be relieved of its responsibilities such as, Integration of existing ABT meters of Open Access consumers, additional equipment such as Additional Meters, Consoles, etc. as required from time to time as per the requirement of Purchaser. Installation of ICCP Server and other such item shall be staggered and are to be completed in the time bound manner and must be indicated in the bid suitably. Time required for implementing such items/ systems may be indicated by SI/ Bidder so that purchaser can take informed decision in respect of when to give go-ahead in respect of these items to meet desired deadlines and/or synchronize these implementations with other schemes.
2. It is a proposed implementation plan, SI may submit its own implementation plan, but Grid loss calculations are required by 31st Mar 2012 and whole project shall have to be completed within 9 months of award
3. The work on next stage to achieve next milestone shall not be started before the permission of Purchaser. It shall be responsibility of the SI to ask for such permission in timely manner to complete the whole project in stipulated time. If possible SI may club

two or more stages to expedite the whole implementation by putting up with facts/ figures/ methodology etc., after taking consent of the Purchaser in this regard.

4. SI may suggest better/ revised implementation time line. The basic strategy to be adopted is to have in place all the ABT Meters on priority which are required to measure energy input and Energy output to/ from PSTCL's Grid so as to calculate grid losses by 31st Mar 2012 and the conventional energy meters may be installed subsequent or in parallel to installation of ABT meters as per the convenience of the bidder with priority to ABT meters. If necessitated rest of the works/ functionality may be delayed accordingly if so required by SI while proposing stages/ milestones.
5. The metering points shall be selected as per the requirements of Purchaser which shall be finalized as per the survey by SI by the end of 1st milestone period. Additional metering points which may crop up thereafter before the system is declared commissioned shall also have to be commissioned prior to final commissioning. However if the metering points are increased substantially (i.e. more than 50% increase or more than 500 number additional) during period, from those decided by the end of 3rd milestone due to any exigency such as policy changes etc, then system can be declared commissioned after necessary performance & guaranteed availability tests. And rest of the meters will have to be commissioned and integrated as per the revised schedule within 4 months from the date of initial intimation for enhanced meter quantity at the rate of 25% every month. SI needs to have a capacity to install 300 meters per month if the need arises for such eventuality even after commissioning of the system. Otherwise under normal circumstances SI is expected to commission new metering points along with associated works & documents etc. within 4 days if only new meters are to be provided and within 10 days if new communications channels are also to be provided along with new meters.

6.2 Implementation Approach and Methodology

The SI shall submit the detailed approach and methodology as part of the technical bid. Necessary PERT charts shall also accompany the proposals. Any deviations in implementation plans and/or periods than the suggested due to logistical or other reasons, if any must be brought out in the deviation chart and discussed with purchaser.

6.2.1 Understanding of Scope

SI shall provide their understanding of the scope of the project elaborating the various lifecycle aspects- viz. Design, Procure, Implement, Operate, and Monitor & Review during their entire contract tenure. The SI shall mention their understanding of various services to be provided including Communication Network for the Meter Data. (Performa-III)

6.2.2 Solution Design

Along with write-up as specified, the SI shall also provide the details of the architecture covering overall framework to be adopted for the execution of the project:

1. Network Architecture proposed
2. Scalability Issues
3. Technical Security measures proposed
4. Hardware/Software proposed
5. **Design**

   Design Consideration

   Assumptions made while designing the solution

6. Implementation

Plans to implement the proposed design.
Implementation methodologies to be used.
Possible risks involved during implementation.
Plans to eliminate or mitigate those risks.

7. Operation and Maintenance

Methodology that would be used to operate
Plans to sub contract or Existing Staff/ resources will be used.

6.2.3 Implementation Plan with Timelines

- Project Organisation- The SI shall provide The project organization chart outlining the roles and responsibility at each level
- The number of resources that will be deployed at each of the levels
- Project risks
- The expectation from Purchaser's staff at various locations
- The assumptions while making implementation plan
- SI shall propose senior level officer as Single Point of Contact for any communication with the Purchaser.
- SI shall propose the Project Review Mechanism.

6.2.4 Operations & Maintenance

SI shall explain the Operation & Maintenance methodology in detail explaining how operations & maintenance will be carried out.

6.2.5 Training Methodology

SI shall provide:

- Training methodology
- Level of skill and experience of the trainers
- Expected Level of skills and experience of the trainees
- In case of non-availability of desired level of skills of trainees available with Purchaser then methodology to make the existing manpower suitable by trainings, courses etc.
- SI has to involve at least 4 persons as may be nominated by the Purchaser with it, from the very beginning, so that they may become proficient in implemented system, be able to handle the system independently in all aspects of routine development, display building, report configuration, etc. and O&M.

6.2.6 Resource Requirement

SI shall provide:

- The proposed number of resources at each locations
- Level of skills and experience of the resources

7 BID EVALUATION CRITERIA

1. Pursuant to the SI meeting the qualification criterion, SIs will be short-listed for the evaluation of the technical/ commercial bid. In case of disqualification, the SI shall be dully informed at appropriate time as may be decided by PSTCL. However, it is not binding on PSTCL to inform the SI or give any reason.
2. An important component for evaluating the proposed solution would be the satisfactory completion and running of similar network including components proposed as part of the proposed solution. Proposed technical components should have a track record of successful implementation of network(s) preferably of similar scope may be smaller in size.
3. PSTCL shall evaluate the technical bids of the qualified SIs to determine whether the technical bids are complete and substantially responsive. Bids that are not meeting the instructions given, not complete or not substantially responsive are liable to be disqualified at PSTCL's discretion.
4. The evaluation will also take into consideration if the equipments to be used for RMR implementation by the SI as per the scope of work defined by this RFP are from the leading industry players.
5. The technical bid shall be evaluated based on the criteria as detailed in the Table below. The SI shall submit all the relevant documents required for the Technical Evaluation as per the Table below with appropriate references in the table itself. SI shall give the cross reference of the document being attached for compliance of PSTCL requirement and shall also highlight the relevant clause of the document.

7.1 Technical Evaluation Table

Sr	Evaluation Criteria	Applicability	Document for Compliance & Verification	Marks
A. Experience in Automated Remote Meter Reading System				**40**
1	Number of years of experience in providing Automated Remote Metering Solutions in any utility	Any member of the consortium	Completion Certificate of relevant assignments	3 (>3Y:3, 3Y-1Y:1, <1Y:1, None: 0)
2	Number of Automated Remote Metering Projects - All types of metering points	Any member of the consortium	Work Order/ Purchase Order, Completion Certificate	4 (>2:4, 2-1:2, under implementation: 1, None:0)
3	Number of Automated Remote Metering Projects - 11 kV and above feeder metering points (minimum 300 metering points)	Any member of the consortium	Work Order, Purchase Order, Completion Certificate	4 (>2:4, 2-1:2, <1(i.e. under implementation):1, None:0)
4	Any AMR project executed for both online data refresh rate of 1 minute or better simultaneously from 100 or above metering points located at more than 50 locations as well as downloading of load survey, tampers, etc stored in	Any member of the consortium	Work Order, Purchase Order, Completion Certificate along with certificate from the end user clearly & unambiguously stating the facts.	6 (Yes: 6, under implementation: 3, No: 0)

	the meter			
5	Any AMR Project/s executed with Availability Based Tariff Meters	Any member of the consortium	Work Order, Purchase Order, Completion Certificate	6 (Yes: 6, under implementation: 3, No: 0)
6	Any AMR projects already executed (may be by SI or any other vendor) with communication technology offered by the SI for this Project for data transfer.	Any member of the consortium	Work Order, Purchase Order, Completion Certificate along with certificate from the end user	6 (Yes: 6, No: 0)
7	Number of Automated Remote Metering projects executed on turnkey basis involving comprehensive O&M for more than 3 years	Any member of the consortium	Work Order, Purchase Order, Completion Certificate	6 (>2: 6, <2 or under implementation: 3, None: 0)
8	Any Similar CEC/ BCS as specified implemented suitable for ABT Regime/ Energy Audit.	Any member of the consortium	Work Order, Purchase Order, Completion Certificate	5 (Yes: 5, under implementation: 3, No: 0)
	B. System Integrator or SI's Organizational Capability			**10**
1	Average annual turnover is more that INR 50 Crore in the best three financial years out of last 5 years.	SI	Financial turnover shall be certified by Chartered Accountant	1
2	Manufacturing capability and/ or Service Provider of all or any one of the following: a) Meters of 0.2 s class accuracy manufacturer. b) In Software development of CEC/ Base Computer Station. c) Communication Service provider of offered system.	SI	Certified Proof to be submitted.	5 (If Meter manufacturer: 5, If in software development: 4, if Communication provider; 2, None: 0)
3	Employee base (>100) with the number of qualified employees on roll over the last financial year	SI	Certificate from SI	1
4	Number of Quality certifications from an accredited and internationally reputed / renowned firm (viz. ISO 9000 etc.)	SI	Valid Proof of Certifications	1
5	Local Presence Office(s) in Punjab with sufficient personnel and inventory of spares	SI	Details to be provided regarding the office(s) addresses and their infrastructure and	2

			employees	
	C. Proposed Integrated Automated Remote Metering Solution			**35**
1	Detailed Write-up along with proposed Solution Design in lucid and plane language (with abbreviation/ standard industry terms expanded and any technology jargon used, explained properly) so that even lay person can understand the offered solution in single reading, with respect to the offered design, approach and methodology of the project along with references (to the point) to the supplied documents/ catalogues in the submitted bid.	SI	At discretion of the Purchaser, shall be given depending upon the readability, responsiveness and suitability of solution offered, No claim/ liability shall be entertained on this account. As such this document may be prepared with full understanding of the scope of requirements and solution be offered accordingly. Technical presentation and/ or demonstration and/ or visit to similar existing setup implemented by the SI/ Members may be required as specified if so desired by the Purchaser.	10
2	With the solution provided by SI, shall the online data will be available simultaneously as specified from all the specified number of meters installed at specified number locations be available in CEC for monitoring purpose along with remote downloading of stored data, load survey, tampers etc for reporting/ billing/ UI, etc. purpose through same communication media/ channel.	SI	Self certified claim of SI. References to already implemented projects/ Demonstration/ visit to already implemented project may be required as specified if so desired by Purchaser.	5 (<=1 Minutes: 5, 1-2 Minutes: 3, 2-5 Minutes: 1, >5 Minutes: 0)
3	With above online data communication going on, will the occasional downloading of stored data, load survey, tampers, etc. as may be required be possible without unduly effecting the routine online date acquisitions.		Self certified claim of SI. References to already implemented projects/ Demonstration/ visit to already implemented project may be required as	5 (No effect: 5, Slight deterioration (i.e. degrade by one step as described above): 2, Complete

			specified if so desired by Purchaser.	stoppage of online data or refresh rate increase to > 5 minutes: 0)
4	If offered Meter has provision for connecting external auxiliary supply (AC and/ or DC normally available at grid substations) so that meter may not unnecessarily load the bus bar/ line PT/ CVT during its normal operation. However The meter must also be capable to operate with the power drawn from the PT/ CVT secondary circuits in absence of Aux. Power supply.	Offered Meter	Technical Specifications of the offered meter.	3 (Yes: 3, No:0)
5	Whether the offered solution of remote reading of online & offline meter data being offered on Open Standard Protocol or Manufacture shall allow full details/ tools etc. for any third party to develop the communication capability without any royalty.	Offered scheme	Technical Specifications of the offered scheme. All & Complete Details of offered protocols of meters and non-royalty undertaking	7 (Open Standard Protocol as specified: 7, Propriety But Details available & Royalty free: 5, Else:0)
6	Whether agrees to provide specified Service levels	SI	Self certified claim of SI. References to already implemented projects/ Demonstration/ visit to already implemented project may be required as specified if so desired by Purchaser.	5 (Yes: 5, Slight Deviation: 4 to 1, Major Deviations: 0)
	D. General Organization and Solution Components			**10**
1	Number of Consortium Partners (Manageability of a consortium would become difficult in case there are more than 2/3 members)	All members of the consortium	Memorandum of Understanding/ Agreement	2 (SI alone:2; 2-3 members including SI:1, >3: 0)
2	Detailed acceptance test plan and procedures	SI	Proposed Solution	2
3	Training Plan and Schedule including proposed training modules	SI	Proposed Solution	2
4	Any time savings proposed in	SI	Proposed Solution	2

	the implementation schedule			
5	Properly Qualified persons proposed by the SI (CVs attached)	SI	Proposed Solution	2
	E. Deviations Taken			**5**
1	Degree of Deviation from the RFP terms and conditions	All members of the consortium	100 percent compliance is expected from SI and any major deviation from specified requirements, shall lead to disqualification. Some deviation may be allowed which does not have major impact on the overall functioning of RMR system and are not disqualifying the SI proposal otherwise; marks shall be deducted based on degree of deviation as mentioned in the Deviation Statement (part of the Bid) from requirements specification and total number of deviations. Further Deviations which leads to better solution may be given full score.	5 (No Deviations or Deviations leading to better solution: 5, Others/ restricting/ conditions etc: 4 to 0)
Total Evaluation Marks				**100**

6. The SI has to give self scoring for the Bid Evaluation as per Performa-X
7. SIs scoring at **least 70% in the techno-commercial evaluation** shall be considered for further opening of Price / Financial Bid. In case of excessive number or very less number of SIs/ Bidder qualifies, Purchaser reserves the right to increase/ decrease the cut-off so as to select at least 3 bidders (if available) and preferable not more than 5 bidders for Price Evaluation. However no SI with less than 50% score shall be considered qualified and as such shall not be considered
8. The price/ financial bids for the techno-commercial qualified SIs will then be opened and evaluated to determine whether the price/ financial bids are substantially responsive. Bids that are not substantially responsive are liable to be disqualified at PSTCL's discretion.
9. The SI may be asked to arrange for the field testing/demo of equipment(s)/ visit to previous implementations during the techno-commercial evaluation if required.
10. Scoring of cut-off percentage (as specified) score in the techno-commercial evaluation shall be treated as minimum pass/ fail qualifying criteria.

8 PAYMENT TERMS

8.1 Currency and Rates of Exchange

All payments shall be made in Indian Rupees only.

8.2 Payment Schedule

The total project cost has been divided into two components for the purpose of payment:

1. The Roll Out cost (That includes supply of material, Installation of meters, services, commissioning of respective items/ equipments, one time fees, spares, permissions etc for implementation of the scheme as specified and recurring charges of communication system, the O&M etc. till it is declared commissioned)
2. The Operations and Maintenance (Comprehensive O&M Cost for a period of 7 years) for the commissioned system from the date of commissioning of Project as above (and of other systems/ items, which were deferred by Purchaser, from their respective date of commissioning)

The payment schedule for the Project w.r.t. milestone/stages as per Section 6 (Implementation Plan/Schedule) is as given below:

i. **Supply Portion**:

85% of the total supply & ETC value on pro-rata for meters (ABT/CEMs) & associated communication commissioned & other complete material/equipment supplied & commissioned as specified etc. along with 100 % Sales Tax/ VAT, Excise Duty and other statutory levies as per contract shall be paid within 30 days of the end of respective stages, against respective commissioning reports duly verified by Purchaser.

ii. **Service Portion:**

85% of the service value provided after successful completion of the service along with 100 % Service tax etc and other statutory levies as per contract shall be paid within 30 days of the end of respective services, against respective commissioning reports duly verified by Purchaser.

iii. Balance 15 % of the (i) & (ii) above shall be payable within 30 days after successful completion of GSAT & Performance Guarantee test for complete System against submission of a Performance Bank Guarantee equivalent to 5 % of work completed (excluding the cost of Comprehensive O&M), valid for period of 12 months from the completion of contract period including O&M contract.

iv. **Comprehensive O&M Services**:

7 years of Comprehensive O&M services shall commence from the successful completion of GSAT Acceptance. Payment during O&M shall be paid 100 % on quarterly basis, along with 100% applicable taxes, if any at the end of each completed quarter, within 30 days after successful completion of services during the said quarter. Since the O&M services are spread over a period of 7 years, total O&M cost quoted by the SI for each year shall be divided into four (4) equal instalments to be paid quarterly in respective year. This O&M charges shall be subject to deduction of any penalties recoverable from the successful SI under this contract as per service levels.

8.3 Other Conditions

1. The payment against the roll out cost shall only be made against the receipt of performance bank guarantee as specified in this bid.
2. Bank Guarantees shall be valid for 12 months from the completion of contract period including O&M contract.
3. For financial/ price bids the SI shall have to take the minimums quantities as specified in the Performa for Price Bids (Performa-XV) and Quantities which are not specified are to be indicated by the SI.
4. PSTCL will award the contract to the successful SI whose bid has been determined to be substantially responsive, has fulfilled the Qualifying requirements during techno-commercial evaluation and has been determined as the lowest evaluated price/ financial bid, based upon the total Cost of the Project as quoted by the SI. The total Cost of the Project shall comprise of two components (i) The Roll out Cost And (ii) The O&M Cost.
5. Respective items/ consignments shall be supplied only after receiving a written go-ahead from the Purchaser.
6. Work Completion Certificate shall be given by the Chief Engineer/ SO&C, PSTCL after the successful user acceptance of the milestones as specified. However, Work Completion Certificate for field related activities shall be issued by the respective Sr. XEN/ P&M and or as may be designated by the Purchaser later-on.
7. Payment to the SI shall be made within 30 days on submission of the Work Completion Certificate and invoice by the SI for the respective works as specified.
8. All invoices should be prepared in 4 copies containing the amount due, description of the equipment installed and details of the work completed or as may be specified. The Original and two copies of the invoice and the Work Completion Certificate given by the concerned officer shall be sent to the concerned payment authority as may be decided by the Purchaser and one copy shall be given to the concerned officer-in-charge of the work.
9. All Payments shall be made by AO/ SLDC, PSTCL, Ablowal (Patiala) or as may be specified later-on.
10. The payment shall be done after considering any penalty charges to be paid by the SI as defined in this bid.
11. Payment due to the SI shall be made by crossed cheque. Such cheques shall be issued direct to the SI upon whom the order was placed, on furnishing a stamped receipt for the amount of the cheque or to his authorized representative who has, a power of attorney, conferring, authority of the SI to receive such payment from the PSTCL except where the SI is described in the Bid as a firm, in which case the receipt must be signed in the name of the firm by one of the partners or by some other persons holding a power of attorney authorizing him to do so by other partners.

9 COMPREHENSIVE O&M

1. The SI shall include in the price schedule, the annual operation & maintenance charges for providing the comprehensive Operation & maintenance support including payments of all sort of recurring charges, fees, etc. for all the equipment supplied at all locations as per the terms and conditions specified. These charges shall be valid for a minimum period of seven (7) years from the date of commissioning worked out on basis of supposedly 2 years warranty period + 5 years of extended warranty period.
2. Until final acceptance of the network by PSTCL after Comprehensive O&M Period, elimination of defects in design, manufacture, material quality, workmanship, erection, replacement of defective parts, to the satisfaction of the Purchaser. Cost of dismantling, transport, re-erection, if any, during the elimination of defects/ replacement of the defective items shall be borne by the SI.
3. The software maintenance services would include availability of software 'fixes' and upgraded versions at no extra cost to the Purchaser for a period of 7 years from the date of network acceptance as has been specified. At all times, Purchaser should be kept informed of the upgrades and 'no-longer-supported' versions. Continued upgrade of the supplied system as and when it is developed/ available with the SI (including sub vendor) is in the scope of supply during the pendency of comprehensive O&M.
4. The Purchaser has option to award the O&M contract to the SI after successful initial period of 7 years or give it to any third party as already specified. SI should provide sufficient documentation so that Purchaser can take-up maintenance by a third party, if necessary.
5. The SI should clearly specify the arrangement for maintenance of the systems including all software supplied. Successful SI shall depute sufficient number of competent personnel as may be required from time to time depending upon the work exigency & quantum of work. However at all times during the currency of the contract at least two (2) competent O&M personals/ Engineers shall be deputed at the Purchaser's premises for maintenance at CEC & development activities/ reports etc and an out door team/s at a selected centralized place for maintenance at remote locations (to be indicated by the SI in the Bid itself). The SI must ensure that the Service Engineer/ team visit all the remote installations at regular interval (at least once every year) apart from on-call basis during breakdown.
6. Recurring charges, permissions, licence fees, frequency allocations, liaison, recurring charges, O&M Charges etc for the O&M Period if any for all the supplied hardware, software, installation, field implementation, Communication, CEC software/ hardware, including etc. which are of non- recurring nature shall be included in the charges for this activity and detailed bill may be raised to claim these charges. Any genuine variation must be passed on the Purchaser with justification; however acceptance/ non acceptance of the same shall done after through verification/s and documents for which SI shall provide the necessary inputs/ support.
7. For Comprehensive O&M, no spares shall be provided by the Purchaser and if required by the SI, then it must be build-up in the Comprehensive O&M prices. It is the responsibility of the SI to operate & maintain the system. At the end of the Comprehensive O&M, all the faulty equipment shall be got rectified by the SI before handing over the same to Purchaser. Purchaser may order additional equipment/ spares before finally taking over the system after Comprehensive O&M, which the SI shall have to supply at its finally agreed rates to the Purchaser so that PSTCL may be able to operate & maintain the system thereafter on its own after end of Comprehensive O&M period.

8. SI shall also be responsible to provide at his cost all the consumables during comprehensive O&M period which shall include Stationary, Printer Cartridges, replacement of equipment due to their wear & tear, Toners, etc. as may be required for O&M.
9. Extension on Comprehensive O&M on mutually accepted terms & conditions for further period beyond 7 years as specified.
10. Continued support (on technical aspects, etc.) free of cost for at least five years even after expiry of Comprehensive O&M. Service support if required could be on payable basis during such period. Life span of the supplied system/ equipment under the Project shall be as specified.
11. SI shall certify & commit to make available the spares to repair the faulty equipment & for its expansion for life span as specified after declared commissioning of the system. SI shall also suggest, maintain stock & supply the critical/ mandatory spares of the equipment which it may visualize to become extinct in due course, before such eventuality may arise.
12. Detailed complete documentation, as built drawings, source code (with examples), manuals, compilers, tools, debuggers, component level details etc. which shall be required to do further development of software capability at CEC shall be supplied by the SI.
13. Comprehensive O&M support shall include reports configuration, display building, database management, and web management etc. for all the sub systems in all aspects shall be the responsibility of the SI.
14. Complete implementation of additional ABT & Conventional meters, related communication sub-system & data integration as per the specifications, for the additional items, which may be required by Purchaser and any new points as a part of network expansion, at existing or new locations/ sub-stations from time to time. This shall include commissioning of meters, communication, any accessories/ incidentals/ permissions required for their successful commissioning. The cost of such additional work shall be at per unit rate already quoted by the SI in the Bid in a time bound manner to be indicated by the SI. It shall be PSTCL's prerogative to procure such additional equipments from the successful SI or on its own and get only additional communication work implemented through the successful SI. Any necessary changes in database, reports, energy accounting model, bills etc. at any/ all the equipment/ locations to make the additional metering point fully functional similar to initial stage metering points covered in the scheme should be included in the Comprehensive O&M prices. These segregated works shall be implemented by SI on mutually agreed terms and conditions as and when required. However cost at unit rates for working out such subsequent works may also be quoted.
15. In case of need to provide new equipment/ third party software for the scheme as may be required due to change in specifications during O&M and evolution period, the same shall be arranged by the SI in discussion/ agreement with Purchaser, at a reasonable price keeping reasonable margins for its efforts. Purchaser shall have the right to determine the exact difference in cost through the means which may be available/ possible and contest the SI's claim if it is found to be unreasonable. In case of dispute on this account the Purchaser shall have right to get the supply of ABT meters or any other equipment/ third party software, partial or complete on its own and SI shall have to provide other services i.e. the communication connectivity, accessories, other equipment & changes in databases/ reports/ settings/ integration etc.
16. SI will have to submit details regarding the time periods required by it for fulfilling the new requirements/ additions/ amendments in respect of software changes, display building,

reports, installation of new meters, providing communication infrastructure etc. for each item for providing time bound effective service to the Purchaser during O&M periods.

17. The Comprehensive O&M service shall include Warranty support/ replacements of any faulty equipment associated with this scheme, system up-gradations, suggesting new better & cheaper equipment due to development in technologies leading to less recurring cost, meeting with functional/ performance requirements even after commissioning.
18. As stated the Comprehensive O&M contract shall be extendable by a further period as per mutual agreed terms & conditions at the time of such extension. Process for such extension shall start 1 year in advance from the expiry date of existing O&M contract to be initiated by the SI. In case of no initiative is taken by existing SI, it shall be assumed that existing SI is no more interested in providing the services after the expire of present contract and Purchaser shall have the right to search for new O&M service provider. Rates of the equipment & services shall be determined, taking in account the inflation from the original date of starting of previous O&M contract period, general decrease in electronics/ technology prices, implementation price for a similar new system and such other genuine considerations which shall be put forth by the SI at that time and evaluated & accepted by the Purchaser.
19. Purchaser reserves the right to review the performance of the bidder during Comprehensive O&M period and if found not up to the mark it may not be continued at the option of the Purchaser.

10 TRAINING REQUIREMENTS

SIs shall arrange to provide training to Purchaser's personals and/ or nominees and associate them from the very beginning with the Project execution till the end so as to build the capacity of the Purchaser to take over & handle the project independently. For this purpose necessary training modules will be defined by the SI and trainings will be arranged for each module & further development of the system and on all the aspects of O&M. Also SI may suggest basic qualifications requirements of the personnel who will be suitable for specific jobs/ trainings associated with this project. Purchaser will try its best to arrange for the persons with specific qualifications. But in case of non-availability of such persons, SIs shall train the available/ nominated persons of the Purchaser completely. SI shall access the calibre of the nominated persons who are assigned to undergo the respective training module and prepare the respective module curriculum accordingly to train them completely & comprehensively. Training & Capacity Building of PSTCL personnel during the entire project period shall be the responsibility of SI. Details of training methodology in this regard should be submitted by the SI. The detailed contents for each course may be finalized during detailed engineering.

SI shall also give training to requisite number of PSTCL's personals at its works. Duration of the course shall be two or more weeks and each day shall have 8 teaching hours.

For Training at PSTCL's premises, PSTCL may depute persons in one batch (or as may be mutually agreed), so as to fully acquaint them with the system as will be proposed by the SI. Duration of the course shall be one or more weeks and each day shall have 8 teaching hours. PSTCL shall provide a training room on free of cost basis.

All the expenses of training & trainees at onsite and offsite shall be borne by the bidder. However TA/ DA, hotel charges, etc. of the trainees shall be paid by PSTCL.

11 SERVICE LEVELS AND PENALTY TERMS

11.1 Desired Service Levels

The selected vendor shall automatically be bound with a Service Level Agreement with PSTCL on minimum service levels desired herein or as agreed to be mentioned in the final Order as shall be proposed by the SI/ Bidders. Desired availability is of the order of 99.9% in respect of individual meters, communication channels, individual equipments which substantially affect over all operations, reports; scheduling etc. 99 % in respect of all the three sub-systems individually and 97% over all for the Project as a whole. Availability shall be calculated quarterly as the payments shall be made quarterly to the SI during O&M period. The unit of calculation shall be hour for penalty purpose. Calculation of uptime can be done with the following formula:-

$$\text{Quarterly Uptime (\%)} = \frac{\text{Total number of hours in the quarter} - \text{Total downtime in hours}}{\text{Total number of hours in the quarter}} \times 100$$

If successful SI is not able to maintain the system as per above defined expected service levels, then 10 % of the O&M cost shall be deducted per 1% or its part, degradation after 97% desired availability, subject to the maximum of 50% of the O&M cost, by Purchaser from the amount due per quarter to the Successful SI/ Bidder for the O&M service.

11.2 Service Levels and Penalty Terms

Sr	Service Area	Service Condition	Acceptable Limit	Penalty
1	Hardware procurement & installation (during O&M)	Replacement of defective / faulty equipments already supplied by the SI	Replacement within 5 days (including non-working days)	Rs. 1,000/- for each day delayed beyond the allowed period.
2	Data transfer through communication connectivity (during O&M)	Instantaneous parameter data from all the ABT meters installed shall be transferred from the remote metering point to the CEC.	Within 1 (one) minute through implemented Communication media	Rs.10,000/- for every test failure (once every week)
3	Data transfer through communication connectivity (during O&M)	Instantaneous parameter data from all the conventional meters installed shall be transferred from the remote metering point to the CEC.	Within 15 minutes through implemented Communication media	Rs.10,000/- for every test failure (once every week)
4	Communication Failure (during O&M)	If there is a failure in transmitting data through the communication connectivity and or meter is faulty, the SI	Within 48 hours (including non-working days)	Rs. 1,000/- for each day delayed alongwith the full communication charges/ recurring charges payable

		shall be responsible to collect data through CMRI or any other appropriate mechanism		for that channel.
5	CEC (during O&M)	If there is any error in the software or MIS reports generated are not as per PSTCL's requirement, the SI shall be responsible to provide correct and error free software and/ or MIS reports	Within 24 hours	Rs. 1,000/- for each day delayed
		Slippage in Reporting frequency of MIS generation as defined by PSTCL		% of O&M charges payable will be deducted on proportionate basis
6	Work Completion Time (pre-commissioning)	The SI shall be responsible to complete the work as per Work Plan Schedule	As per work schedule for the milestones	0.5% of the payable amount as per the payment schedule for every week delayed subject to maximum of 5% of total contract value of undelivered/ un commissioned equipment so delayed.

Note 1: Penalty clauses are applicable for the entire project duration including the roll out phase and the comprehensive O&M phase of 7 years as applicable.

Note 2: Penalty shall be deducted from the next payable amount due to the SI.

Note 3: For Serial no. 2 & 3 in the Table above - Data shall also be pulled out of meters as per the schedule defined by the PSTCL from time to time. However this penalty is to ensure network capability to transfer data and this can be tested by PSTCL any time. This penalty shall be imposed at the time of testing done by the PSTCL.

Note 4: The finally Order will be taken as a contract agreement (Performa-XI) between SI & Purchaser as far as, SLA is concerned.

12 GENERAL TERMS & CONDITIONS

12.1 Earnest Money

1. In case of open and Limited tenders, the bidders shall be required to submit Earnest Money at the following rate in the form of PSTCL's Cash Receipt/ Bank Demand Draft in favour of "AO/ SLDC, Punjab State Transmission Corporation Limited, Patiala " payable at Patiala along with the tenders:-

   a) Tender valuing up to Rs. 50,000/- Nil

   b) Tenders valuing above Rs.50,000/- @ 2% of tendered value rounded off to multiple of Rs.10/- on the higher side, subject to minimum Rs. 5000/- and maximum of Rs.10.00 (ten) lac.

2. The following shall be exempted from depositing Earnest Money:-

   a. Public Sector Undertakings fully owned by the Punjab Govt/Central Government/Other state Governments supplying material directly through units owned by them provided that a certificate of Govt. ownership issued by the concerned Govt. Department shall be submitted in the envelope for Earnest Money. Exemption shall not be applicable if the tender is submitted for supply of material through private unit/manufacturer.

   b. Suppliers having Permanent Earnest Money of deposit Rs.10.00 Lac with the SO&C organisation of the PSTCL, a certificate to this effect issued by the concerned Accounts Officer of the PSTCL during three months immediately preceding the due date of tender opening and showing the Serial Number/Account Number allotted in the Permanent Earnest Money Deposit Register shall be submitted by the SIs in the envelope for Earnest Money.

3. Earnest money may be accepted in the form of Bank Guarantee valid up to 3 months after the validity date of tenders as per NIT/Tender specification in the case of Public Sector Undertakings partly owned by Punjab Government/Central Govt./other State Governments. The proof of the firm being a joint venture of the Central/State Govt. shall be attached with the bank guaranteed.

4. In case of successful SIs, earnest money shall be converted as security deposit and shortfall, if any, shall be got deposited for faithful execution of purchase order/contract.

5. Earnest Money shall be forfeited in case of withdrawal/ modification of an offer within the validity period as required in the NIT/Tender Specification after opening of Tenders.

6. In case of tenders not accepted, the earnest money shall be refunded within 30 days of the award of Order/ Contract to the successful SIs.

12.2 Price Schedule

The price (s) shall be indicated in the bidding price schedule as per the format attached in this bid which shall form the part of the **PRICE BID.** The quoted prices shall be further governed by the following terms & conditions:-

1. Any price/payment discount figure offered by the SI, shall be indicated in the price bid it self i.e. Part III of tender. Offering of discount on quoted prices subsequent to the opening of tenders, will be out rightly rejected.

2. No taxes and duties shall be paid on the element of cost quoted (packing charges not forming part of production cost) of the price format given in the price schedule

3. The quoted Unit prices shall be applicable for addition/deletion of BoM quantities during contractual period

4. The SIs are required to quote price per unit

5. Tenders without break up of prices are liable to be rejected.

6. Whether the firm indicates NIL or concessional rate of E.D. in their tenders they will have to absorb the ED up to full rate applicable at the time of tendering, In case the firm which do not agree to this condition or indicate the ED as extra, without indicating the applicable rate or remain silent, then the tender of the firm will be loaded with maximum rate of duty for evaluation purpose.

7. Whether the firm indicate NIL or concessional rate of CST/VAT in their tenders they will have to absorb the CST/VAT up to 4% applicable at the time of opening of tender. The firms which don't agree to this condition or indicate CST as extra without indicating the applicable rate or remain silent then the tenders of the firm will be loaded with 4% CST/VAT for evaluation purpose.
8. Modvat Benefit: The firms should quote their rates after taking into account the Modvat Benefit available to them. If the firms do not mention clearly about Modvat Benefit, then it will be assumed that they have quoted the rates after taking into account the Modvat benefit available to them.
9. In case of imported equipment, the SI shall indicate Custom Duty and any other duty/cess component as applicable separately along with rates. Freight, port handling, forwarding / custom clearances and inland freight & insurance shall be part of FOR quoted prices. The SI shall be entirely responsible for import of equipment. However, essentiality certificates, if any shall be provided by the purchaser.

12.3 Sales Tax

12.3.1 Punjab General Sales Tax:

The material on order is required for use in generation, transmission and distribution of electrical energy to the Public. As such, the Punjab Sales Tax is not applicable under clause-5 (2)(a)(iv) of the Act.

12.3.2 Value Added Tax

The VAT as applicable if inclusive in prices shall be paid against documentary proof on submission of following certificates:-

i) Certified that the transaction on which tax has been claimed has been/will be included in the return submitted/to be submitted to the Sales tax authorities for the assessment of the tax and the amount claimed from the PSTCL has been/shall be paid for the Sales Tax Authorities.

ii) Certified that the goods on which tax has been charged have not been exempted under the rules made there-under and charges on account of the Sales tax on these goods are correct under the provisions of the relevant act or rules made there-under.

iii) Certified that we shall indemnify the PSTCL in case it is found at a later stage, that wrong or incorrect payment had been made on account of tax paid by us.

iv) Certified that we are registered dealer & our Regn. no. is.of VAT as applicable if inclusive The material on order is required for use in generation, transmission and distribution of electrical energy to the Public. As such, the Punjab Sales Tax is not applicable under clause-5 (2)(a)(iv) of the Act.

12.3.3 Central Sales Tax

The PSTCL has been registered as a dealer under the Central Sales Tax Act.

When the Central Sales Tax is to be paid by the PSTCL, a declaration Certificate in Form-`C' will be issued by the concerned AO on receipt of material.

When the tax is to be paid by the Supplier a declaration certificate in Form-`C' will be issued by the concerned AO subject to submission of the following certificates: -

a. Certified that the transaction on which tax has been claimed has been/will be included in the return submitted/to be submitted to the Sales Tax Authorities for the assessment of the Sales Tax and the amount claimed from the PSTCL has been/shall be paid to the Sales Tax Authorities.
b. Certified that the goods, on which Sales Tax has been charged have not been exempted under Central Sales Tax Act or the Rules made there-under and the charges on account of the Sales Tax on these goods are correct under the provisions of the relevant Act or rules made there under.
c. Certified that we shall indemnify the PSTCL in case it is found at a later stage, that wrong or incorrect payment had been made on account of the Sales Tax paid by us.
d. Certified that we are registered dealers under the Central/State Sales Tax act and our Registration No. is_____

e. Certified that payment has been made under protest. The bills for the Sales Tax and insurance charges, if any, should be submitted separately. A declaration certificate in Form 'C' will be issued by concerned AOfor all supplies received during a particular accounting year.

The firms indicating nil or concessional rate of CST/ ST in their tenders will have to absorb CST/ST up to the final rate applicable at the time of tendering. The firms, which do not agree to this stipulation or indicate CST as extra without indicating the applicable rate, be loaded with maximum rate of CST

12.3.4 Excise Duty

Excise Duty if applicable will be paid at full rates prevailing during the scheduled delivery on the basis of actual period subject to the production of the following certificates by the Manager/Senior Administrative Officer of the firm along with documentary proof:

a. Certified that the transaction on which the Central Excise Duty has been claimed has been/shall be included in the return submitted/to be submitted to the Central Excise Authorities and amount claimed from the PSTCL has been/shall be paid to the Central Excise Authorities.

b. Certified that the goods on which Excise Duty has been charged have not been exempted under Central Excise Duty rules and that the Central Excise charged on these goods is not more than what is payable under the provision of relevant Act or rules made there under.

c. Certified that we shall indemnify the PSTCL in case it is found at a later stage that wrong or incorrect payment has been received on account of Excise Duty, amount paid will be refunded. The benefit/credit of the CED under MODVAT Scheme duly authenticated by the authorities/ representatives of the Central Excise Dept. shall be allowed to the Purchaser in the invoice of concerned equipment. In case Central Excise staff refuses to issue a separate gate pass indicating the excise duty claimed from you, the original invoices raised for the supply of the equipment will bear a certificate from the Central Excise staff to the fact that Excise Duty has been charged from you and the amount so charged will be indicated.

The firms indicating nil or concessional rate of E.D. in their tenders will have to absorb E.D. up to the final rate applicable at the time of tendering. The firms, which do not agree to this stipulation or indicate E.D. as extra without indicating the applicable rate, be loaded with maximum rate of excise duty.

12.3.5 Octroi Charges

Octroi charges at destination shall be paid extra on actual basis as applicable.

12.3.6 Contract

The detailed order issued in accordance with agreed terms and conditions and accepted/acknowledged by the firm shall itself form valid contract along with subsequent amendment, if any, and shall be construed and operated as such in terms of Indian Contract Act-1872 as amended up to date.

It will be obligatory on the part of the successful Tenderer to execute within 30 days of the receipt of detailed order, a legal contract agreement on non-judicial stamp paper of the appropriate value as per format specified by PSTCL (Performa-XI). The detailed Purchase Order so issued shall be termed Purchase Order-Cum-Contract Agreement. The contract shall be made in duplicate and each party will retain one copy.

12.3.7 Intimation to the AO/SLDC and Consignee

The Supplier will give advance intimation regarding despatch of the material to AO/SLDC, PSTCL, Ablowal(Patiala) to enable him to arrange payment. A copy of such intimation should be sent to the consignee and the Purchaser office as well. Demurrage, wharfage charges in connection with despatch of the material if any shall be charged to Supplier's account

12.3.8 Invoicing Procedures

All invoices should be prepared in six-triplicate (6 copies). The original and two copies showing the amount due, description of material, number of packages together with delivery note/Receipted challan as issued by the Consignee should be sent to AO/ SLDC, PSTCL, Ablowal (Patiala). Fourth copy with a copy of invoice and

delivery note/ receipted challan should be sent to the consignee and the remaining copies to the Chief Engineers/ SO&C, SLDC Projects, 220 kV Grid Sub-Station, Ablowal, PSTCL, Patiala-147001, simultaneously.All payments are to be made by AO/ SLDC, PSTCL, Ablowal (Patiala)and no goods will be accepted by the consignees unless accompanied by priced challans or invoices.

12.3.9 Order Preference

The PSTCL would allow an order preference to such SIs whose works are situated within the State of Punjab as per the procedure laid down as under:-

1. The rate of Punjab firms would be de-escalated by 15% for all the Units. Their position in the comparative statement shall be shown accordingly for the purpose of comparative statement.
2. The zone of consideration for placing of purchase order/contract would thereafter be demarcated taking into account the quantity of material required as per NIT and the quantities offered by the different SIs, subject to the condition that for Punjab based firms upto 20% of the total quantity will be reserved provided they fall in consideration zone after application of price differential. However, where the Punjab firm qualify amongst the lowest SIs on their own quoted rates, they shall form part of the original quoted list for purpose of placing orders.
3. The purchase on the Punjab firm claiming order preference and falling within this zone would be placed on the lowest rate of a firm not claiming order preference within the zone of consideration or on the concerned Punjab firm's own quoted rate which-ever may be lower.
4. In the event of zone of consideration ending at the de-escalated rate tendered by a firm claiming order preference, the rate to be allowed to such firms shall be the next quoted rate by the firm not claiming order preference or the concerned firm's own quoted rate, which-ever may be lower.
5. The Punjab based firms claiming order preference shall be required to furnish an undertaking in prescribed Performa-XII on a Non-judicial stamp papers of appropriate value to the effect that they shall execute the order if placed on them under 'Order Preference' as per the tender specification. Such undertaking should be submitted by the Punjab based tendering firms latest by the close of day of opening of tenders. In case, no such undertaking is furnished by the Punjab based firms who are otherwise eligible for claiming 'Order Preference' as per the tender specification, their tender shall not be considered for placement of any order under Order Preference. In the event of refusal by the Punjab based firms to execute the purchase order/contract at their quoted rates or offers made under Order Preference as per 'c' and 'd' above as the case may be. After having furnished the above under taking, their earnest money shall be forfeited apart from initiating further administrative action, such as suspending business dealings, blacklisting etc.

12.3.10 Despatch Instructions

The material is required to be despatched to designated PSTCL Consignee / stores as per dispatch instructions issued by PSTCL.

12.3.11 Delivery / Commissioning Schedule

The delivery of whole material/equipment and erection, testing, and commissioning of the same at the respective location shall be completed as per the Milestones mentioned in Proposed Implementation Plan.

12.3.12 Date of Delivery/ Commissioning

The date of delivery shall be reckoned as the date of receipt of material by the Consignee as per the Receipted Challan and date of commissioning shall be reckoned as certified by the designated Construction supervision Engineer of the purchaser.

12.3.13 Penalty / Damages for delay in delivery / commissioning

If the Supplier fails to deliver / commission the material/equipment within the stipulated delivery /commissioning period of the Purchase Order/Contract, the same is liable to be rejected and if accepted, the Supplier shall be liable to pay as penalty charges a sum of Rs.0.5% (half of one percent) of the total contract value per month of delay or part thereof, not exceeding maximum limit of 5% of the total contract value of undelivered/ un commissioned equipment so delayed.

There will be a slack of one month that will not entail any penalty and will not involve any additional financial implication to the PSTCL. Delay beyond the slack period will attract penalty for the period of delay including slack period; however there will be no penalty/ liquidity damages in respect of purchase of propriety items.

12.3.14 Force Majeure

During the pendency of the Contract/Purchase Order, if the performance in whole/part by either party or any obligation there under, is prevented/delayed by causes arising out of any war, hostilities, civil commotion, acts of the public enemy, sabotage, fire, floods, explosions, epidemics or non-availability of Government controlled raw material under Orders/Instructions of Central/State Government regulations, strikes, lockouts, embargo, acts of Civil/Military authorities or any other causes beyond their reasonable control, neither of the two parties shall be made liable for loss or damages due to delay or failure to perform the contract during the currency of Force Majeure conditions, provided that the happening is notified in writing (with documentary proof) within 30 days from the date of the occurrence.

The supplies shall be resumed under the contract as soon as practicable after the happening (event) ceases to exist.

12.3.15 Extension in delivery / Commissioning period

Any genuine delay in approval of technical details, drawings, samples, issuance of amendment of Purchase order, conducting inspection and approval of Inspection Test Report/Test Certificates for allowing despatches etc. will count towards extension of the delivery period by corresponding period other than admissible under Force Majeure conditions, if any, substantiated by the supplier and duly accepted by the Purchaser. No extension in delivery shall be granted in case of delay in payment. However, for delayed payments beyond stipulated period as per terms of payment clause, compensation shall be credited @0.5% of the payment so delayed per month or part thereof to be adjusted against penalties levied or to be levied subject to a maximum of penalty leviable due to delay in deliveries under the contract.

12.3.16 Insurance

1. The rates are required to be quoted on F.O.R. Destination basis and it is the responsibility of the Supplier to deliver the goods in sound condition F.O.R. destination and for that purpose the Supplier may at his option insure the material against all risks at his own cost during transit for full delivered value of the material up to destination. All works in connection with making and settling of claims, if any, with Road/Rail transport Authorities and/or Insurance Company shall be carried out by the SI for which the PSTCL shall make no extra payment. However, necessary assistance required in connection with making and settling of such claims, if any, shall be provided by the consignees.
2. All damages and/or shortages during transit as covered by the Insurance shall be made good to the purchaser immediately on their own, and/ or on receipt of such information from the consignee, without waiting for settlement of claims. However, in case of apparent damages and/or shortages the consignees shall obtain the loss/damage certificate from the concerned Transport Authorities and send the same to the SI within a period of thirty days from the date of receipt of material. A certificate shall be submitted by the Suppliers/ SIs with each bill to the effect that the material has been duly insured.
3. The consignees shall report losses and damages to the firm within 30 days of the arrival of the equipment at the store/site. It will, however, be Supplier's responsibility to prefer timely claims on the insurance under-writers and to arrange replacement thereof to the consignees.
4. The Suppliers shall be wholly responsible for the loss, shortages, damages etc. during transit. Such shortages and damages etc. will have to be replaced/repaired by the Supplier/SI free of cost immediately without waiting for maturing of the Supplier's/SI's claims with the concerned transport Authorities.
5. In case replacement/repair of defective material is not carried out within six months of intimation of damages, Supplier shall have to pay interest at the rate of 12% per annum on the advance payments made by the Punjab State Transmission Corporation Limited (PSTCL) from the date of its payment up to the date of its re-commissioning of the equipment after replacement/repair or to the date the default is made good.

12.3.17 Negligence and Default

In case of negligence on the part of Supplier/ SI to execute the order/contract with due diligence and expedition and to comply with any reasonable orders given in writing by the Purchaser in connection with the Purchase

Order/Contract or any contravention in the provisions of the Purchase Order/Contract, the Purchaser may give 21 days notice in writing to the Supplier/ SI to make good the failure or neglect or contravention and if the Supplier/ SI fails to comply with the notice within time considered to be reasonable by the Purchaser, he will suspend/ terminate business dealings with the defaulting firms for a specific period apart from claiming reasonable compensation/ damages, forfeiture of security etc. The action taken under this clause will be notified to all the purchasing agencies and other Transco/ Utilities by the concerned Purchasing Authority of PSTCL.

Further in case of such default by the Supplier/Contractor, the purchaser may also suspend business dealing with the supplier/Contractor apart from claiming reasonable compensation/ damages, forfeiture of security etc.

12.3.18 Inspection of Equipment & Test

The PSTCL shall inspect, examine and test the equipment/ material through its official(s) and/ or through an outside agency nominated by PSTCL at the manufacturer's/ Supplier's works, during or after the manufacture of goods prior to despatch, on receipt of a clear notice of minimum two weeks in advance, to be reckoned from the date of receipt by the Purchaser. The Supplier/ SI shall provide all facilities as may be required to carry out the tests in accordance with approved standards, free of cost. If the purchaser or nominee representative desires to have one or all tests got through independent laboratory/ test house, the testing charges of such a laboratory/ test house shall be borne by the supplier. The Purchaser shall dispatch no material without prior inspection and approval of test certificates.

Random testing of material on its receipt in the Stores irrespective of the fact whether or not it was inspected before despatch shall be carried out by PSTCL and in case of any failure; the entire lot shall be rejected at the risk and cost of the supplier.

12.3.19 Fake Inspection Call (s)

All such firms, who often after giving inspection call do not put up material to inspecting officer(s) for inspection due to one reason or the other, shall be required to remit the expenditure on T.A. & D.A. of the Inspecting Officer(s) for each such visit which shall be Rs.3000/- (Outside Punjab), Rs.1000/- (Within Punjab) per visit of each officer.

Besides this recovery against each such fake call, a letter of warning shall be issued and it shall be counted towards firm's performance for all intents and purposes. These charges shall be Rs.5000/- and Rs.2000/- per visit of each officer respectively in case the material fails during inspection

12.3.20 Guaranteed Site Availability Test (GSAT) of the System

The SI shall demonstrate final acceptance test on commissioning of complete scheme with continuous availability as specified in "Service Levels & Penalty Terms" Section for the each equipment for a minimum period of 30 days. The availability achieved shall be calculated jointly by the SI′s representative and the purchaser as per the modalities to be finalised by the Purchaser beforehand. In case the actual achieved availability falls short of the guaranteed availability under the contract, it would be considered as SI's default. The equipment shall not be considered as successfully commissioned without successful demonstration of Guaranteed Site Availability Test (GSAT).

12.3.21 Warranty and SI's Responsibilities

The Supplier/ SI shall be responsible to replace free of cost with no transportation and insurance expenses to the Purchaser up to the destination of material/ equipment, the whole or any part of the material, which under normal and proper use and maintenance proves defective in material or workmanship within the O&M Period as per RFP from the date of successful commissioning and carrying out of GSAT of the equipment by the SI.

The above provision shall equally apply to the material so replaced/ repaired by the Supplier/ SI during the warranty period in case the same is again found to be defective within the period equal to the period of O&M Period as per RFP, of its replacement/ repair.

In case the replacement/repair of defective material is not carried out within two months of its noticing or intimation, the Supplier/SI shall have to pay interest @12% per annum on the value of each complete operational unit of equipment beginning from the date of its becoming defective up to date of its re-commissioning after replacement/repair.

The SI shall be responsible to maintain the scheme during installation and field testing/ commissioning and O&M Period as per RFP, phase till its taking over. The SI shall repair or replace all defective parts and shall have prime responsibility for maintaining as per defined maintenance schedules and keeping the system operational to the satisfaction of Purchaser.

12.3.22 Completeness of Equipment

All fittings, accessories and apparatus not specifically mentioned in the specification but are actually necessary for completeness of the equipment shall be deemed to be included in the offer. All equipment shall therefore be complete in all respects whether such details are mentioned in the tender document or not.

12.3.23 Cancellation

The Purchaser reserves the right to cancel the Purchase order as a whole or in part at any time or in the event of default on the part of the Supplier prior to the receipt of intimation regarding taking in hand of the manufacture of material against the Purchase Order/despatch of material to the consignee.

12.3.24 Raw Material

The raw material to be used in the manufacture of the goods/equipment to be supplied against Purchase Order/Contract shall be of the best quality of its kind obtainable in the market. The Supplier shall be solely responsible for the procurement of raw material required for the purpose.

12.3.25 Material & Workmanship

All the materials used in the manufacture of equipment shall be of the best quality obtainable of their respective kinds and whole of the work shall be of the highest class, well finished and of approved design and make. Casting shall be free from blow holes, flaws, cracks or other defects and shall be smooth, close grained and of true forms and dimensions.

12.3.26 Changes

No variation or modification or waiver of any of the terms and provisions shall be deemed valid unless mutually agreed upon in writing by both the Purchaser and the Supplier.

12.3.27 Packing

All material should be suitably packed for transportation direct to the consignee and the Supplier shall be responsible for all damages/losses due to improper packing. All boxes shall be marked with the signs indicating up and down sides of the boxes and also unpacking instructions considered necessary by the Supplier. The contents of boxes shall have place marks corresponding to the number in the packing lists to enable easy identification. The destination station/ location name of the material shall also be marked on all boxes. The prices quoted by the SIs shall be deemed to include the cost of packing.

12.3.28 Instruction Plates & Markings

All the name plates, instruction plates, warning signs and any markings whatsoever on the equipment and its parts and accessories shall be in English language with idioms in current use. Purchaser's Name, Purchase Order number and date be given on the name plates.

12.3.29 Test Certificates and Documents

The Supplier/SI shall be required to furnish to the Purchaser's office/consignees, wherever necessary, the following documents along with the consignment:

i) Printed pamphlets & catalogues. (3 Copies)
ii) Computerized Control Centre (CEC) station folder containing all hardware, layout , wiring , GA , drawings key diagram, I/O points, (5 Copies)

iii) As built Bill of Material, erection/ Installation drawings, wiring details/sizes (interconnecting/termination details), etc for each station (separately) (5 Copies)
iv) User (Operation and Maintenance) Manual (5 Copies)
v) Approved Drawings/ as-built drawings (5 Copies)
vi) Any other relevant information/document (as to be decided by purchaser) (3 Sets)
vii) Any other manual/ schematics/ source code etc as mentioned else where in the RFP. In addition to the above the SI shall furnish minimum 3 (three) set of the following test certificates along with consignment for facility of the consignees: -
a) Type Test Certificates
b) Routine Test Certificates
c) Acceptance/ Inspection Test Report

12.3.30 Civil Suit / Juridiction

All legal & arbitration proceedings in connection with the Purchase Order/Contract shall be subject to the territorial jurisdiction of the local Civil Courts at Patiala, Punjab only.

12.3.31 Undertaking

All the Tenderers are required to give the following undertakings on their letterhead with the tender documents (Performa-III)

i) That they would not pay any commission etc. or engage any commission agent or liaison agent for dealing with PSTCL in any matter including purchase of equipment
ii) That no officer/official of the PSTCL will deal with any person who claims to be a commission agent or liaison agent of any company and that the officers/officials of the PSTCL must deal only with persons directly employed by the Suppliers.

12.3.32 Places(s) of Manufacture

The equipment shall be brand new. The Tenderer shall state the make, place(s) of manufacture as well as the places of testing and inspection of the equipment offered in his tender. It shall also be stated whether the equipment offered carries ISI: certification mark or not. The material carrying ISI mark will be preferred.

12.3.33 Arbitration

1. If at any time any question, dispute or difference, what so-ever, shall arise between the Purchaser/PSTCL and the SI/Supplier, upon or in relation to, or in connection with the Purchase Order/Contract, either party may forthwith give to the other, notice in writing of the existence of such question, dispute or difference and the same shall be referred for sole arbitration by a nominee of the Purchaser/PSTCL, who shall give a reasoned/speaking awards. The award of the Sole Arbitrator shall be final and binding on the parties under the provision of the latest Indian Arbitration Act, and the rules there under. Any statutory amendment, modification or re-enactment thereof for the time being in force shall be deemed to apply to and be incorporated in the Contract/Purchase Order. It will not be objectionable if the Sole Arbitrator is an officer of the PSTCL and he has expressed his views on all or any of the matters in question of dispute or difference.
2. Upon every or any such reference, the cost of and incidental to the reference and award respectively shall be in the discretion of the Sole Arbitrator so appointed who may determine the amount thereof or direct the same to be taxed as between Solicitor and Client or as between party and party and shall direct by whom and to whom and in what manner the same is to be borne and paid.
3. The work under the Contract shall, if reasonably possible, continue during the arbitration proceedings and no payment due or payable by the Purchaser/PSTCL shall be withheld on account of such proceedings.

12.3.34 Samples/ Demonstrations/ Visits

Whenever asked for, samples/ demonstrations/ visit to already implemented projects must be supplied/ given/ arranged by the SI/supplier free of cost at the purchaser's office/ location. Ordinary samples will not be returned to the Tenderer/ supplier. However, expensive samples, the return of which is desired by the supplier/SI will be returned to him at his own risk and cost.

12.3.35 Approval of Drawings / Certificates

1. Two complete sets of Technical details/specification of the equipment, Type & Routine Certificates (if already carried out on similar equipment), detailed equipment drawings and any other special requirement for shipping/ transportation of equipment up to destination will be submitted by supplier with in 2 to 3 weeks from the date of receipt of purchase order. Approval on drawing wherever required, will be conveyed by the Purchaser normally within 15 days from its receipt.
2. In case any further details or modifications be required by the PSTCL the same shall be conveyed to the supplier within the said 15 days period for conveying approval where after it will be the responsibility of the supplier to submit further details of modified drawings within 2 weeks of receipt of intimation and get these approved from the PSTCL which will be done within the usual 15 days period from their receipt.

12.3.36 Discounts

The SIs are informed that discount, if any, should be merged with the quoted prices. Discounts of any type, indicated separately, will not be taken into consideration for evaluation purposes.

12.3.37 Firm Price

Prices quoted by the SI must be all inclusive, firm and final, and shall not be subject to any escalation whatsoever during the period of the contract. Prices should indicate the price at site and should include all state and central taxes, Viz. excise/ custom duties on the final finished supplies tendered for.

12.3.38 Revelation of Prices

Prices in any form or by any reasons should not be revealed in techno-commercial bid or before opening the price bid, failing which the offer shall be liable to be rejected.

12.4 Terms and conditions of Tendering Firms

In case terms and conditions of the contract applicable to this invitation of tender are not acceptable to any SI, clearly specify the deviation as per the Performa-I.

Similarly in case the equipment and services being offered has deviations from the schedule of requirements laid down in the RFP, the SI shall describe in what respects and to what extent the equipment and services being offered differ/ deviate from the specification, even though the deviations may not be very material. SI must state categorically whether or not his offer conforms to requirement specifications and schedule of requirements and indicate deviations, if any.

12.4.1 The PSTCL's right to vary quantities at the time of award

The PSTCL reserves the right at the time of award of contract to increase or decrease the number of metering points, associated communication and/ or other equipment as specified in the Schedule of Requirements without any change in unit prices or other terms and conditions.

12.4.2 The PSTCL's Right to accept any bid/ reject any or all bids

The PSTCL reserves the right to accept any bid, and to annul the tender process and reject all bids at any time prior to award of contract, without thereby incurring any liability to the affected SI or SIs or any obligation to inform the affected SI or SIs of the grounds for PSTCL's action.

12.4.3 Notification of Award

Prior to the expiration of the period of bid validity, the PSTCL will notify the successful SI(s) in writing by registered letter or by cable or telex or fax, that his bid has been accepted. The receipt of acceptance should be sent by the SI in writing through registered post as well as by fax.

The notification of award will constitute the formation of the contract.

Upon the furnishing of performance security by the successful SI(s), the PSTCL will promptly notify each unsuccessful SI and will discharge the bid security.

12.4.4 Signing of Contract

At the same time as the PSTCL notifies the successful SI that his bid has been accepted, the PSTCL will send the SI the contract form (Performa-XI), incorporating all agreements between the parties.

On receipt of the contract form, the successful SI shall sign and date the contract form, and return it to the PSTCL as per mutually decided date.

12.4.5 Security Deposit

The successful SIs shall be required to submit security deposit for faithful execution of the Purchase Order/ Contract at the rate of two percent (2%) of order value rounded off to a multiple of Rs.10/- on the higher side.

Ordinarily the EMD received with tenders shall be converted into Security Deposit. If the amount of EMD received with tender is more than the amount of security deposit required for the Purchase Order/ Contract, the balance shall be refunded and in case of shortfall the SI/ Supplier shall be required to deposit the additional amount.

In the case of SIs from whom Earnest Money is accepted in the form of Bank Guarantee, the Security Deposit shall also be acceptable in the form of Bank Guarantee, valid up to 3 months after the completion of contract period, including warranty period if any. To start with, the Bank Guarantee submitted against Earnest Money shall be treated as Bank Guarantee against Security Deposit. If its amount is adequate, its validity may be extended by the SI to cover the total period required for security Deposit, otherwise, the SI shall be required to submit fresh Bank Guarantee for the correct amount and period for security, then the Bank Guarantee for Earnest Money shall be released.

Public Sector Undertakings owned by Punjab Government/Central Government/other State Governments, supplying material directly through units owned by them shall be exempted from depositing security against Orders/Contracts given to them. However, exemption shall not be applicable for the supply of material through a private unit / manufacturer.

The Tenderers having permanent deposit of Rs. 10.00 lac with the Chief Engineer/ (SO&C) organization and hence exempted from depositing Earnest Money with Tenders, shall also be required to submit Security Deposit of 2% of order value in the form of Bank Guarantee within 30 days from the award of Order/Contract.

On faithful execution of Purchase Order/Contract in all respects, including warranty period, if any, the security deposit of the SI shall be released by the Contracting/Purchasing Agency.

In the event of default on the part of the SI in the faithful execution of Purchase Order/Contract his security deposit shall be forfeited by an order of the contracting/purchasing Agency under intimation to all other Superintending Engineers, Chief Engineers.

The forfeiture of Security Deposit shall be without prejudice to any other rights arising or accruing to the PSTCL under relevant provisions of the Purchase Order/Contract, like penalty/damages for delay in delivery including suspension of business dealings with PSTCL for specific period.

12.4.6 Performance Security

In addition to the Security Deposit as defined in the Section above, the successful SI shall provide a performance security @ five (5) percent of the total contract value excluding Comprehensive O&M Value in the form of Bank Guarantee valid upto 12 months after the contract period including the O&M Period. The successful SI shall provide the Performance Security as per the Performa-XIII defined in this bid document.

The balance payments to the successful SI regarding the roll out of the scheme shall commence ONLY after receipt the Performance Security.

The PSTCL shall have the right to execute the Performance Bank Guarantee in the event of any contractual violation by the successful SI during the entire contract period.

12.4.7 Period of Agreement

The period of agreement shall be considered till the end of O&M period as per this RFP i.e. for installation, testing, commissioning, operation and maintenance of this scheme. The PSTCL reserves the right to extend the period of this agreement beyond five years subject to mutually accepted terms and conditions as stated in this RFP.

13 OTHER GENERAL TERMS & CONDITIONS

13.1.1 General

The following shall supplement the conditions already contained in the other parts of these specifications and documents and shall govern the portion of the work of this Contract to be performed at Site.

The SI upon singing of the Contract shall, in addition to a Project Coordinator, nominate a responsible representative for field activities who shall have overall responsibility and co-ordination of the works to be performed at Site.

13.1.2 Regulation of local authorities and statutes

The SI shall comply with all the rules and regulations of local authorities during the performance of his field activities. He shall also comply with the Minimum Wages Act, 1948 and the Payment of Wages Act (both of the Government of India) and the rules made there under in respect of any employee or workman employed or engaged by him or his Sub-Contractor.
All registration and statutory inspection fees, if any, in respect of his work pursuant to this Contract shall be to the account of the SI. However, any registration, statutory inspection fees lawfully payable under any statutory laws and its amendments from time to time during erection in respect of the equipment ultimately to be owned by the Purchaser, shall be to the account of the Purchaser. Should any such inspection or registration need to be re-arranged due to the fault of the SI or his Sub-SI, the additional fees to such inspection and/or registration shall be borne by the SI.

13.1.3 Purchaser's lien on equipment

The Purchaser shall have lien on all equipment including those of the SI brought to the site for the purpose of erection, testing and commissioning of the equipment to be supplied & erected under the Contract. The Purchaser shall continue to hold the lien on all such equipment throughout the period of contract. No material brought to the site shall be removed from the site by the SI and/or his Sub-SI without the prior written approval of the purchaser.

13.1.4 Inspection, testing and inspection certificates

The provision of the clause entitled Inspection, Testing and Inspection Certificates under Technical Specification shall also be applicable to be erection portion of the Works. The purchaser shall have the right to re-inspect any equipment though previously inspected and approved by him at the SI's works, before and after the same are erected at site. If by the above inspection, the purchaser rejects any equipment, the SI shall make good for such rejections at his own risk and cost either by replacement or modification/repairs as may be necessary to the satisfaction of the purchaser. Such replacements will also include the replacements or re-execution of such of those works of other SIs and/or agencies, which might have got damaged or affected by the replacements or re-work done to the SI's work.

13.1.5 Access to site and works on site

Suitable access to and possession of the site shall be afforded to the SI by the purchaser in reasonable time. The SI shall carry out necessary field adaptation jobs for interfacing equipment & hub at sub stations/ at designated places. The SIs shall have the complete responsibilities for the conditions of the work site including the safety of all persons employed by him or his sub-SI and all the properties under his custody during the performance of the work. In the execution of the works, no person other than the SI or his duly appointed representative, Sub-SI and workmen shall be allowed to do work on the site, except by the special permission, in writing of the purchaser or his representative.

13.1.6 Protection of work

The SI shall have total responsibility for protecting/ safety/ security of his works till it is finally taken over by the purchaser as per contract. No claim will be entertained by the purchaser for any damages or loss to the SI's works and the SI shall be responsible for complete restoration of the damaged works to original conditions to comply with the specification and drawings, should any such damage to the SI's works occur because of any party not being under his supervision or control.

13.1.7 Site facilities to be provided by the purchaser

A) SPACE :

The purchaser shall at his discretion and for the duration of execution of the Contract make available at site, land/ space as required for execution of the contract. On completion of work the SI shall hand over the land duly cleaned to the purchaser.

B) ELECTRICITY/ POWER SUPPLY

The power supply as may be decided by purchaser will be provided free of charge for consumption in works which may be located at premises of the Purchaser. SI shall provide and install all necessary wiring fixtures, bulbs and other temporary equipment as necessary for further distribution and utilization of energy for power and lighting and shall remove the same on completion of the work.

C) WATER

Free supply of water will be made available for the construction purpose wherever water is available and the same shall be given at agreed point at the site

Note: PSTCL's Guest House accommodation facility may be provided to the SI subject to its availability as per applicable PSTCL rules. In case of power supply & water requirements at locations where Purchaser doesn't have a power connection/ water connection etc. then SI will make its own arrangements at its own cost.

13.1.8 Facilities to be provided by the SI

A) Tools, tackles and scaffoldings:

The SI shall provide all construction equipment, tools, tackles and scaffoldings required for pre-assembly, erection, testing and commissioning of the equipment covered under the contract.

B) COMMUNICATION

The purchaser will extend the telephone & telex, if available at site, for purpose of contract. The SI shall be charged at actual for such facilities.

C) FIRST AID

The SI shall provide necessary first aid facilities for all his employees, representatives and workmen working at the site.

13.1.9 Fire protection

The work procedures that are to be used during the erection shall be those, which minimize fire hazards to the extent practicable. Combustible materials, combustible waste and rubbish shall be collected and removed from the site at least once each day. Corrugated paper fabricated cartons etc. will not be permitted in the construction area either for storage or for handling of materials. All such materials used shall be of waterproof and flame resistant type. All the other materials such as working drawings, plans etc. which are combustible but are essential for the works to be executed shall be protected against combustion resulting from welding sparks, cutting flames and other similar fire sources. Cables/ wires etc. shall be fire proof/ retardant.

13.1.10 Security & safety

The SI shall have total responsibility for all equipment and materials in his custody/stores, looses, semi-assembled and/ or erected by him at site. The SI shall make suitable security arrangements including employment of security personnel to ensure the protection of all materials, equipment and works from theft, fire, pilferage and any other damages and loss. All materials of the SI shall enter and leave the project site only with the written permission of the purchaser in the prescribed manner. The SI shall be fully responsible for ensuring safety of his men and material deployed at site The SI shall provide adequate safe working conditions at the site and shall take necessary precautions to enforce safety rules when working under hazardous conditions.

13.1.11 Materials handling and storage

All the equipment furnished under the contract and arriving at site shall be promptly received unloaded transported and stored in the allocated storage space by the SI. The SI shall be responsible for examining all the shipment and notify the purchaser immediately of any damage, shortage, discrepancy etc. for the purpose of information only. The SI shall be solely responsible for any shortages or damage in transit, handling and/or in storage and erection of

the equipment at Site. All equipment shall be handled very carefully to prevent any damage or loss. The equipment stored shall be properly protected to prevent damage either to the equipment or the floor where they are stored. The equipment from the store shall be moved to the actual location at the appropriate time so as to avoid damage of such equipment at site.
All the materials stored in the open or dusty location must be covered with suitable weatherproof and flame proof covering material wherever applicable.

13.1.12 Site office records

The SI shall maintain up to date copies of all drawings, specifications and other Contract Documents and any other supplementary data complete with all the latest revisions thereto. The SI shall also maintain in addition the continuous record of all changes to the above Contract Documents, drawings specifications, supplementary data, etc. effected at the field and on completion of his total assignment under the Contract shall incorporate all such changes on the drawings and other engineering data to indicate as installed conditions of the equipment furnished and erected under the Contract. Such drawings and engineering data shall be submitted to the purchaser in required number of copies.

13.1.13 Insurance

The following statutory provisions shall also apply in addition to the Insurance of Material:-

A) WORKMEN'S COMPENSATION INSURANCE
This insurance shall protect the SI against all claims applicable under the Workmen's Compensation Act, 1948 (Government of India). This policy shall also cover the SI against claims for injury, disability, diseases or death of his or his Sub-SI's employee, which for any reason are not covered under the Workmen's Compensation Act, 1948. The liabilities shall not be less than Workmen's Compensation As per statutory Provisions Employees liability As per statutory provisions.

B) COMPREHENSIVE GENERAL LIABILITY INSURANCE
This insurance shall protect the SI against all claims arising from injuries, disabilities, disease or death of members of public or damage to property of others, due to any act or omission on the part of the SI, his agents his employees, his representatives and Sub-SIs from riots, strike and civil commotion. The hazards to be covered will pertain to all the works and areas where the SI his sub-SIs, his agents and his employees have to perform work pursuant to the Contract.
NOTE: The above are only illustrative list of insurance covers normally required and it will be the responsibility of the SIs to maintain all necessary insurance coverage to the extent both in time and amount to take care of all liabilities either direct or indirect, in pursuance of the contract.

13.1.14 CODE REQUIREMENTS

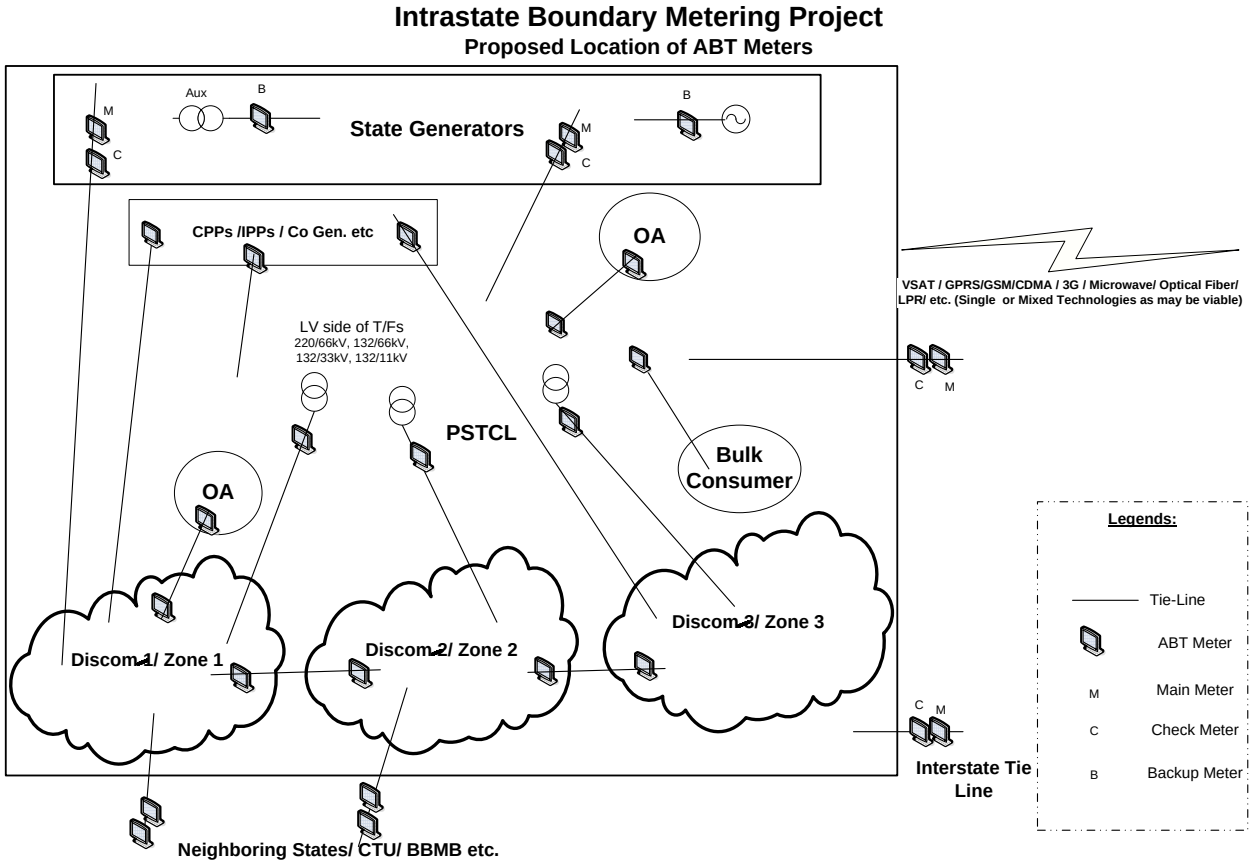
The erection requirements and procedures to be followed during the installation of the equipment shall be in accordance with the relevant codes and accepted engineering practices, approved Drawings and other applicable Indian recognized codes and laws and regulations of the Govt. of India.

13.1.15 COMMISSIONING SPARES

It will be responsibility of the SI to provide/ maintain all commissioning spares required for initial operation till the end of successful completion of performance and guarantee test /GSAT and beyond till the end O&M period. All commissioning spares shall be deemed to be included in the scope of the contract at no extra cost to the Purchaser. These spares shall be received and stored by the SI at least 1(one) month prior to the schedule date of commencement of commissioning of the respective equipment and utilized as and when required.

14. Annexure & Performa

Annexure-I



Calculations for ABT Meter Quantity for Boundary Metering

The assessment of tentative number of interface points is made in accordance with stipulations of SGC.

a. **Generators (PSPCL) -PSTCL interfaces**: For Energy Injection to PSTCL, Main & Check meters on all outgoing feeders above 66kV at Generator Switchyard, for the purpose of Energy Sent Out (ESO) Main and check meters on all outgoing feeders at any voltage level and back up meter on each generator and auxiliary transformer.

b. **PSTCL– DISCOM (PSPCL)**: Metering at the following points on the LV side of EHV Power Transformers:-
   - 66 kV side of 220/66 kV or 132/66 kV transformers.
   - 33/11 kV side of 132/33kV or 132/11 kV transformers.

c. **Consumers Feeders**: Main meters for all IPPs/ CPPs at any voltage level and independent consumers of PSPCL above 66kV.

d. **Interstate Points:** Check meters on each interstate points where ABT meters are already installed

Sr	Description	No. of Locations	1 Amp	5 Amp
1	Generating Stations	8	197	10
2	Transco-Discoms interface points at 220 kV Sub Stations	51	85	14
3	Transco-Discoms interface points at 132 kV Sub Stations	79	74	114
4	Consumers connected directly with PSTCL at 132 kV & 220kV level.	11	15	0
5	Interstate Lines	25	73	0
6	All IPPs/ CPPs	37	12	27
7	400 kV Substations and upcoming Thermal Generating Stations	9	79	0
Total		**220**	**535**	**165**
Grand Total		**220**	**700**	

Detailed List of Interface/ Metering Points & Locations

Sr. No	Name of Substation	1 Amp	5 Amp
A. 220kV Substations (Punjab)			
1.	Ablowal	2	
2.	Ajitwal	1	
3.	Amloh	1	
4.	Bagapurana		2
5.	Bahadurgarh	2	
6.	Bajakhana	1	
7.	Barnala	3	
8.	Batala (Wadala Granthian)	1	1
9.	Butari	1	
10.	Civil Lines, Loharka ASR	2	2
11.	Dera Bassi (Saidpura)	2	
12.	Dhandari Kalan-I	2	
13.	Dhandari Kalan-II	2	
14.	Dhuri	2	
15.	Fatehgarh Churian	2	
16.	Ferozepur	2	2
17.	Ghubaya	2	
18.	Gobindgarh-I	3	
19.	Gobindgarh-II	3	
20.	Gobindgarh-III	2	
21.	Goraya	2	2

22.	Himmatpura	1	
23.	Humbran	2	
24.	Jagraon	2	
25.	Jamsher	2	
26.	Jamsher	4	
27.	Khassa	1	
28.	Kohara	1	
29.	Kotla Jangan	1	
30.	Kotli Suratmali	1	
31.	Lalton Kalan	2	
32.	Mahilpur	2	1
33.	Majitha	1	
34.	Malerkotla	2	
35.	Mansa	2	
36.	Moga		2
37.	Mohali-I	3	
38.	Mohali-II	1	
39.	Mukatsar		1
40.	Patran	2	
41.	Patti	2	
42.	Rajla	1	
43.	Rajpura	2	
44.	Reshiana	1	
45.	Sahnewal	2	
46.	Sarna	1	
47.	Sultanpur	2	1
48.	Sunam	2	
49.	Thatha Sahib (Botianwala)	1	
50.	Tibber	1	
51.	Verpal	2	
B. 132 kV Substations (Punjab)			
1.	Abohar	2	2
2.	Alawalpur	1	1
3.	Anandpur Sahib	1	2
4.	Asron		1
5.	Badal	2	1
6.	Badni Kalan	1	2
7.	Baluana		1
8.	Banga	2	1
9.	Batala	1	1
10.	Beas		
11.	Bhikhiwind	2	1
12.	Bhogpur	2	2

13.	Bilaspur		1
14.	Chamkaur Sahib		1
15.	Children Park		1
16.	Chohal	2	
17.	Dhariwal	1	1
18.	Dharamkot	2	2
19.	Dhilwan		2
20.	Doraha	2	2
21.	Ekalgadda		1
22.	Faridkot		1
23.	Ferozshah	2	2
24.	Gholian		1
25.	Ghulal	2	2
26.	Gidderbaha		1
27.	Hakima Gate		2
28.	Hardochinna Road, Gurdaspur	2	2
29.	Hoshiarpur	2	2
30.	I.G.C., BTI	2	1
31.	Jadla	1	
32.	Jallalabad	2	2
33.	Jandiala Guru		2
34.	Jayantipur		1
35.	Kahanpur		1
36.	Kangra		1
37.	Kapurthala	2	2
38.	Kathu Nangal	1	2
39.	Kharar	2	2
40.	Khera Mandir	2	
41.	Kotkapura-I	2	2
42.	Kotkapura-II		1
43.	Mall Mandi ASR MC		2
44.	Mall Mandi GT RD.	1	2
45.	Malout	2	2
46.	Mamoon, Pathankot		1
47.	Mana Singh Wala		1
48.	Maur	2	2
49.	Moga-I	2	2
50.	Moga-II		1
51.	Muktsar	2	2
52.	Nakodar	1	2
53.	Naraingarh	2	2
54.	Nawanshahar	1	2
55.	Nurmehal	2	2

56.	P Colony, ASR		1
57.	Pakharpur		1
58.	Panjgraian		1
59.	Pathankot	2	2
60.	Phagwara	1	2
61.	Phillaur	1	1
62.	Ropar	2	2
63.	Sadiq	2	2
64.	Samadh Bhai	1	1
65.	Sarainaga		2
66.	Sc. City, Jalandhar		1
67.	Sehh		1
68.	Shamashpur (Samrala)		1
69.	Sihora		1
70.	Skatri Bagh		1
71.	Sosan		1
72.	Sri Hargobindpur	2	2
73.	Swadi Kalan		1
74.	Talwandi Bhai (Kot Karore)	2	1
75.	Tanda		2
76.	Tangra		2
77.	Tarn Taran	2	2
78.	Urban Estate Ph-II, Jalandhar		2
79.	Verka	1	2
C. Generating Stations including Switch yard			
1.	GNDTP, Bathinda	30	
2.	GHTP, Lehra Mohabat	36	
3.	UBDC HEP	14	
4.	Ranjit Sagar HEP	22	
5.	Shanan HEP	17	10
6.	GGSSTP Ropar	36	
7.	Anandpur Sahib HEP	14	
8.	Mukerian HEP	28	
D. Interstate Substations			
a) 400 kV			
1.	Amritsar (PGCIL)	2	
2.	Ludhiana (PGCIL)	2	
3.	Malerkotla (PGCIL)	2	
4.	Moga (PGCIL)	4	
5.	Patiala (PGCIL)	2	
b) 220 kV			
6.	Barnala (BBMB)	1	
7.	Bhakra (BBMB)	1	

8.	Ganguwal (BBMB)	1	
9.	Gobindgarh-2 (PSTCL)	2	
10.	Jalandhar (BBMB)	7	
11.	Jalandhar (PGCIL)	2	
12.	Jamalpur (BBMB)	8	
13.	Jamsher (PGCIL)	4	
14.	Lehra Mohabbat (PSTCL)	1	
15.	Mahilpur (PGCIL)	2	
16.	Mohali (PSTCL)	6	
17.	Pong (BBMB)	1	
18.	Ranjitsagar (PSTCL)	3	
19.	Sangrur (BBMB)	3	
20.	Sarna(PSTCL)	6	
c) 132 kV			
21.	Chohal (PGCIL)	1	
22.	Kangra (PGCIL)	1	
23.	Ropar (PSTCL)	5	
24.	Sarna & Pathankot (PSTCL)	2	
25.	Shanan (PSTCL)	4	
E. Independent Power Plants (IPPs) & Captive Power Plants (CPPs)			
1.	Rana Sugars Ltd. Batala	1	
2.	AB Grain& Spirits	1	
3.	Jalkheri Power Plant	1	
4.	Luxmi Foods& Energy, Kohara	1	
5.	Indian Acrylics Pvt .Ltd. Sangrur	1	
6.	Narangwal MHP		1
7.	Dalla MHP		1
8.	Tugal MHP		1
9.	Chupki MHP		1
10.	Khatra MHP		1
11.	Kanganwal MHP		1
12.	Bowani MHP		1
13.	Jagera MHP		1
14.	Bajak SPV		1
15.	Khatkar Kalan SPV		1
16.	Hebowal Biometh. LDH		1
17.	Dolowal MHP		1
18.	Salar MHP		1
19.	Bhanubura MHP		1
20.	Babanpur MHP		1
21.	Killa		1
22.	Sahoke		1
23.	Cnakbhai MHP		1

24.	Lohgarh		1
25.	Sadana		1
26.	Ghollian MHP		1
27.	Channuwal MHP		1
28.	Akhara MHP		1
29.	Khanpur		1
30.	Sudhar		1
31.	Gill Power Ltd Babheli		1
32.	Malwa Power Pvt. Ltd	1	
33.	Universal Biomass	1	
34.	Atlantic Power	1	
35.	Punjab Biomass	1	
36.	Azure Solar Plant (SPV)		1
37.	KRBL Ltd. Dhuri	1	
38.	Chandigarh Distiller & Bottlers	1	
39.	Dee Development Engineers,Pvt.Ltd	1	
F. **Tentative number of ABT meters for 400kV interface points with upcoming 400kV substations in Punjab**		3	
G. **Tentative number of ABT meters for New Thermal Generating stations coming up in Punjab**		78	
H. **Substations having Independent Feeders**			
1.	220Kv Sahnewal	2	
2.	220kV Rajpura	2	
3.	132kV Ropar	1	
4.	132kV Anandpur Sahib	1	
5.	132kV Asron	3	
6.	132kV Mamoon	1	
7.	220kV Civil Lines Amritsar	1	
8.	220kV Butari	1	
9.	220 V Jamsher	1	
10.	132kV Kapurthala	1	
11.	132kV Khera Mandir	1	

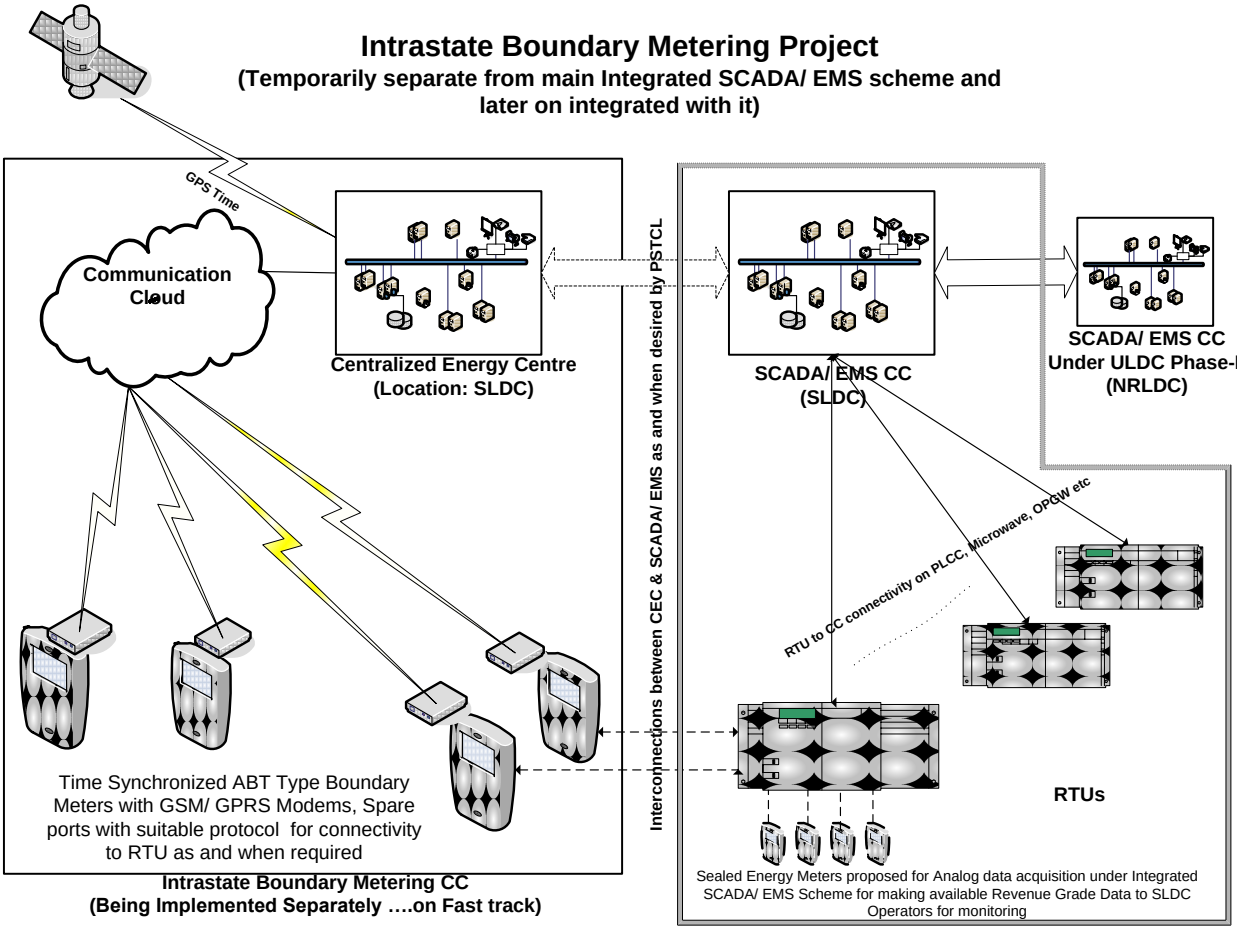
Quantity of Conventional Energy Meter Required for Transmission Energy Audit

At present around 400 Number Conventional Energy Meters are proposed to be installed at substations of PSTCL as per the field requirements on 400 kV, 220kV & 132kV transmission lines.

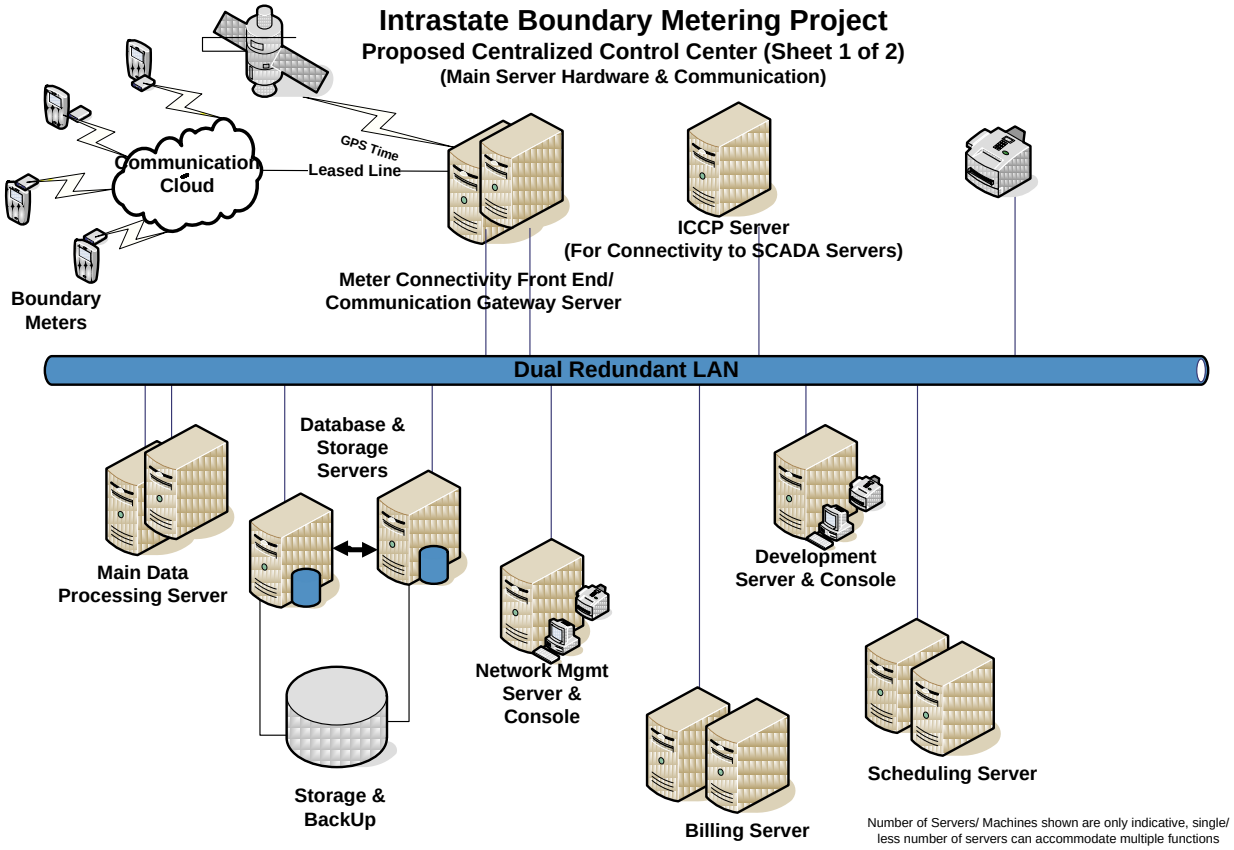
Note: The above specified list of meters & substations is only for indication purposes and the actual quantity may vary as per the field survey. Apart from this, meters shall also be installed at future new/ upgraded substations as specified in the RFP from time to time.

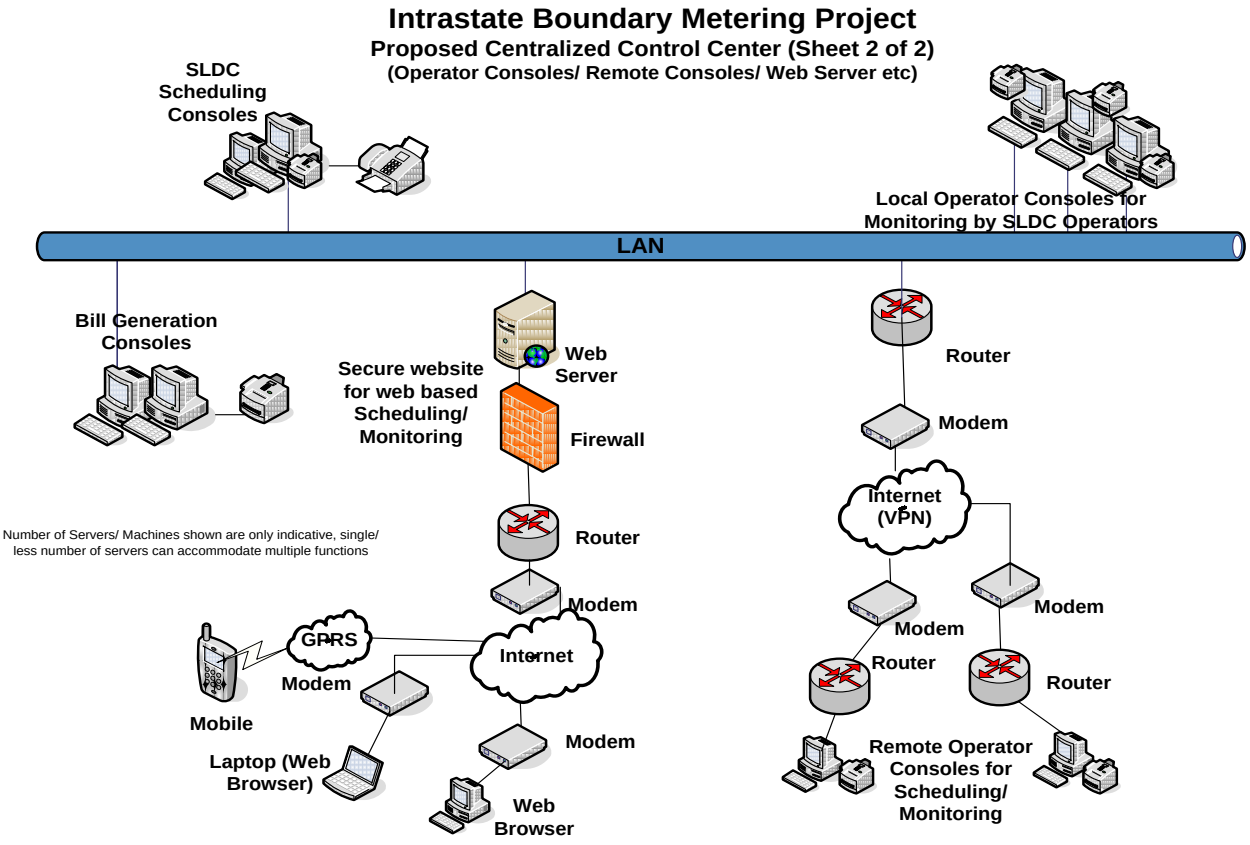
Annexure-II

Schematic of Intrastate Boundary Metering Scheme cum Intra- Transmission Energy Audit and its future connectivity to SCADA/ EMS as and when Integrated SCADA/ EMS shall come up


Intrastate Boundary Metering Project
(Temporarily separate from main Integrated SCADA/ EMS scheme and later on integrated with it)
GPS Time
Communication Cloud
Centralized Energy Centre (Location: SLDC)
SCADA/ EMS CC (SLDC)
SCADA/ EMS CC Under ULDC Phase-II (NRLDC)
Interconnections between CEC & SCADA/ EMS as and when desired by PSTCL
RTU to CC connectivity on PLCC, Microwave, OPGW etc
Time Synchronized ABT Type Boundary Meters with GSM/ GPRS Modems, Spare ports with suitable protocol for connectivity to RTU as and when required
Intrastate Boundary Metering CC
(Being Implemented Separately ….on Fast track)
RTUs
Sealed Energy Meters proposed for Analog data acquisition under Integrated SCADA/ EMS Scheme for making available Revenue Grade Data to SLDC Operators for monitoring

Annexure-III


Intrastate Boundary Metering Project
Proposed Centralized Control Center (Sheet 1 of 2)
(Main Server Hardware & Communication)
GPS Time
Communication Cloud
Leased Line
Boundary Meters
Meter Connectivity Front End/ Communication Gateway Server
ICCP Server (For Connectivity to SCADA Servers)
Dual Redundant LAN
Database & Storage Servers
Main Data Processing Server
Development Server & Console
Network Mgmt Server & Console
Storage & BackUp
Billing Server
Scheduling Server
Number of Servers/ Machines shown are only indicative, single/ less number of servers can accommodate multiple functions



Annexure-IV

A. Technical Specification of Availability Based Tariff (ABT) Type Meter (Accuracy Class-0.2S)

1.0 **Scope:**

The specification covers the design, engineering, manufacture, assembly, and testing of Static/ Electronic ABT (Availability Based Tariff) compliant Trivector Type, Four Quadrant, Bi-Directional Energy Meter, suitable for 3- phase 4-wire connections, solidly earthed system with balanced and un-balanced loads for a power factor range from zero to unity (lagging and leading), with initial and sustained accuracy of class 0.2S. The meter shall be installed for EHV/ HV circuit, as a self-contained device for measurement of active energy transmittals in each successive 15-minutes block etc. meeting the ABT requirements and certain other functions, as described in the following paragraphs/ sections of this document. The meter shall be suitable for being connected to voltage transformers (VTs) having a rated secondary line-to-line voltage of 110 V, and to current transformers (CTs) having a rated secondary current of 1A/5A. Any further transformers/ transducers required for their functioning shall be inbuilt in the meter. Necessary isolation and/ or suppression shall also be built-in for protecting the meter from surges, voltage spikes, fault-currents, EMI etc. that occur in the VT and CT circuits of extra high voltage switchyards. The reference frequency shall be 50 Hz. The energy meter shall be rack/ panel/ metal box mounted with individual/ common/ both types of displays.

2.0 Standards:

While drafting this specification, reference has been made to Punjab State Grid Code, National and International standard specifications with latest amendments. In case, if certain details are not covered in this specification, the relevant State Grid Code/ Indian/ International standard shall be applicable:

IS-14697: AC static Watt Hour Meter for Active energy (Class-0.2S) with latest amendments
IEC-60687: Static Watt hour meter for class 0.2s with the latest amendments
CBIP Tech. Report No.88 (Revised with Latest amendment), with latest amendments
CBIP Tech. Report 111 for common Meter Recording instrument and optical Ports in use, with latest amendments
IS-9000 Basic Environmental Testing Procedures for Electronic and Electrical Items.
PSGC (Punjab State Grid Code)

The meter shall preferably be ISI marked and shall fully comply with all stipulations in applicable standards with latest amendments/ the relevant provisions of Punjab State Grid Code, except those specifically modified by this specification.

3.0 ABT Specific Requirements:

a) N**et Active Energy**: The Active Energy (Wh) measurement shall be carried out on 3-phase 4-wire principle with accuracy as per Class 0.2s. The energy shall be computed directly in CT and VT secondary quantities. The meter shall compute the N**et Active Energy** (Wh) sent out from the substation bus-bars during each successive 15-minutes block, and store it in its memory along with plus/ minus sign i.e. the positive sign if there is a net energy export, and a minus sign if there is a net energy import. Net Active Energy sent out up till that moment in the

current block as well as net active energy sent out for the immediate previous block shall be displayed while scrolling.

b) **Reactive Energy**: The meter shall also compute the **Reactive Power** (Var) on 3-phase 4-wire principle, with an accuracy as specified and integrate the **Reactive Energy** (Varh) algebraically into two separate registers, one for the period for which the average of RMS voltages of all 3-Phases is103.0% or higher, and the other for the period for which the average of RMS voltages of all 3-Phases is below 97.0%. The **Current Reactive Power** (VAr), with a plus or minus sign, and **Cumulative Reactive Energy** (Varh) readings of the two registers shall be displayed while scrolling. The readings of the two registers at each midnight shall also be stored in the meter's memory. The Reactive Power and Reactive Energy transmittals shall be computed in Var/Varh & directly calculated in CT and VT secondary quantities. When lagging reactive power is being sent out from substations busbars, Var display shall have a positive sign and Varh register shall move forward. When reactive power flow is in the reverse direction, Var display shall have a negative sign and Varh registers shall move backwards.

c) **Average Frequency**: For the purpose of **Average Frequency** of 15 minutes block for ABT purpose the meter shall count the number of cycles in VT output during each successive 15-minutes block, and divide the same by 900 to arrive at the average frequency. This shall be stored in the meter's memory as a 2-digit code which shall be arrived at by subtracting 49 from the average frequency, multiplying by 50 and neglecting all decimals. For example, 49.89 Hz shall be recorded as 44. In case the average frequency is less than 49.0 Hz, it shall be recorded as 00. In case it is 51.0 Hz or higher, it shall be recorded as 99. As Average Frequency parameter is also specified to be measured and stored in absolute terms with 2 decimal places, coded Avg Frequency storage on 15-min basis be treated as optional depending upon meter memory space.

4.0 Other Power Quantity Measurements Requirements:

a) **Average Frequency (Hz):** The Average Frequency of 15 minutes block shall be displayed directly in Hz with two decimal places and shall also be stored in its memory as such. The average frequency shall be recorded with a resolution of 0.01 Hz for the minimum frequency range from 47.50 to 52.50 Hz. The average frequency of current block upto that instant as well as immediate previous 15 minutes block shall be displayed while scrolling in Hz.

b) **Active Energy Import & Export:** The meter shall also compute Active Energy Import & Export separately during each successive 15 minutes block, store in its memory and display while scrolling, for current block as well as immediate previous 15 minutes block..

c) **Net Cumulative Active Energy:** Further, the meter shall continuously integrate and display while scrolling the Net Cumulative Active Energy sent out from the substation busbars upto that time. The cumulative Wh reading at each midnight shall be stored in the meter's memory. The register shall move backwards when active power flows back to substation busbars.

d) **Average Voltages:** The meter shall continuously compute the instantaneous average of the RMS values of the three line-to-neutral VT secondary voltages as a percentage of 63.51 V and display while scrolling. The accuracy of the voltage measurement/ computation shall be atleast 0.5%, a better accuracy such as 0.2% in the 95-105% range being desirable.

e) **Various Other Power Quantities:** Various other power quantity measurements in addition to those specified in other sections/ else where in this specifications, shall be as listed below:

Instantaneous Power Quantities: (Y=Yes Required, N= Not Required)

Sr.	Parameter	Scrolling/ Cyclic Display		Remote Reading	Storage at the end of the block	ABT Billing Related
		Current Block	Immediate Previous Block			
1	Current – $I_{r,}$ I_{y}, I_{b}	Y	N	Y	N	N
2	Voltage- $V_{rn,}$ V_{yn}, V_{bn}	Y	N	Y	N	N
3	Average of RMS Voltage as Percentage of 63.51 V	Y	N	Y	N	N
4	Power Factor	Y	N	Y	N	N
5	Frequency – (Hz)	Y	N	Y	N	N
6	Apparent Power	Y	N	Y	N	N
7	Active Power	Y	N	Y	N	N
8	Reactive Power	Y	N	Y	N	N
9	Real-Time Clock (Date & Time)	Y	N	Y	N	N

15-Minute Block Level Power Quantities (For 45-days):

Sr.	Parameter	Scrolling/ Cyclic Display		Remote Reading (Current Block Instantaneous as well as Immediate Previous Block)	Storage at the end of the block	ABT Billing Related
		Current Block	Immediate Previous Block			
1	Active Energy Import	Y	Y	Y	Y	N

2	Active Energy Export	Y	Y	Y	Y	N
3	Frequency (Hz) – Average	Y	Y	Y	Y	Y
4	Reactive Energy Lag Import	Y	Y	Y	Y	N
5	Reactive Energy Lead Import	Y	Y	Y	Y	N
6	Reactive Energy Lag Export	Y	Y	Y	Y	N
7	Reactive Energy Lead Export	Y	Y	Y	Y	N
8	Net Active Energy	Y	Y	Y	Y	Y
9	Frequency (Coded 00-99 for 49.00-51.00 Hz)	Y	Y	Y	Y*	Y
10	Apparent Energy Import	Y	Y	Y	Y*	N
11	Apparent Energy Export	Y	Y	Y	Y*	N
12	Total Energy (Fundamental + Harmonics)	Y	Y	Y	Y*	N

*(Optional depending upon availability of Storage)

Day Level Power Quantities (For 45 days):

Sr.	**Parameter**	**Scrolling/ Cyclic Display**		**Remote Reading (Current Day Instantaneous as well as Immediate Previous Day))**	**Storage at the end of the day**	**ABT Billing Related**
		Current Day	**Previous Day**			
1	Day's Active Energy Import	Y	Y	Y	Y	N
2	Day's Active Energy Export	Y	Y	Y	Y	N
3	Net Cumulative	Y	Y	Y	Y	N

	Active Energy					
4	Day's Reactive Energy High (V>=103%)	Y	N	Y	Y	Y
5	Day's Reactive Energy Low (V<=97%)	Y	N	Y	Y	Y
6	Count and Max/ Min Duration of power off of feeder.	Y	N	Y	Y	N
7	Duration of Power off hours of the feeder.	Y	N	Y	Y	N
8	Apparent Energy Import	Y	Y	Y	Y	N
9	Apparent Energy Export	Y	Y	Y	Y	N

Perpetual Type Power Quantities:

Sr.	**Parameter**	**Scrolling/ Cyclic Display**		**Remote Reading (Instantaneous)**	**Storage**	**ABT Billing Related**
		Current Block	**Previous Block**			
1	Cumulative Active Energy perpetual counter in Wh(Separate for import & export as in conventional bidirectional energy meter)	Y	Y	Y	Y	N

Note: Signs may be used to represent Export/ Import/ Lag/ Lead in concurrence with the general scheme as specified in "ABT Specific Requirements" section. Besides the above specified lists, complete list of available parameters for online monitoring & available parameters which are stored in the meter & are retrievable through ports or otherwise, available in the meter may also be supplied with the Bid.

5.0 Meter Display:

Each of the rack/panel/metal-box shall have alphanumeric common/ individual/ both type of legible/ easily readable and visible (even during the night) display for indication of the meter parameters one by one of all the Instantaneous Parameters, the current as well as immediate previous 15 minutes block, Day Level parameters & Perpetual type

parameters as specified . These parameters shall be auto-displayed through scrolling/ cyclic display etc. with scroll lock facility. Auto scrolling/ cyclic display etc. shall be visible when any one of the specified power supplies is available.

Besides the quantities specified in the section "Other Power Quantity Measurements Requirements", the following measured/ calculated values/ quantities shall also scroll/ cycle continuously:

i) Meter's identification code and model as specified as well as unique meter serial number.
ii) Date (DD/MM/YYYY), Time (HH24:MM) & Current Block No
iii) Last recorded anomaly/ fraud/ incident log etc. as specified in this specification.

The display shall automatically come back to scrolling mode if push button is not pressed for say 3 minutes. The display shall meet with the condition of minimum roll over period stipulated in clause 6.10 of IS: 14697:1999. The display shall have a good readability & visibility, with back lighting if required.

The size/ height of Displayed digits should be around 10mm. Display size should be such, so as to display complete/ multiple values as per the type of the contents. While displaying the values, the identification of each value shall be possible preferably through full quantity name or through easily understandable mnemonics/ abbreviations etc. Display must be electronic. LCD/ LED display must have a life at least equal to the life of the meter. The minimum guaranteed life in years of LCD/ LED should be clearly brought out by the manufacturer.

6.0 Data Storage Requirements/ Meter Storage Capacity:

Each meter shall have a Non-Volatile Memory (NVM) in which various parameters as specified shall be stored. Meter shall have storage capacity (Non-volatile) for the specified meter data in its memory for at least a period of 45 days. All the data shall be stored in the form of arrays. The older data shall not get erased unless replaced by fresh data. NVM, which does not require any battery backup shall have minimum retention period of 10 years. Battery backed up memory will not be considered Non-Volatile.

7.0 Monitoring of Voltages:

The three line-to-neutral voltages shall be continuously monitored and in case any or all of these falls below about 70% the condition shall be suitably indicated and recorded in the logs. The indication details shall be given on the front of the meter. The time blocks in which such a voltage failure occurs/ persists shall also be marked, for example with star (*), while storing in the meter's memory. The indication shall automatically become normal when VT secondary voltages are healthy again. The two specified Varh registers shall remain stay-put while VT supply is unhealthy.

8.0 Special Power Quantity Measurement/ Display/ Storage/ Protection requirements:

a) The meter will do calculations, display & store the various values in CT/ PT secondary power quantities.

b) Meter data in secondary quantities for display and storage shall have minimum 8 digits including one decimal digit for cumulative values and 2 decimal digits for other power quantities.

c) No rounding off to the next higher last decimal shall be done for voltage and frequency. All 15-minutes Wh figures shall however be rounded off to the nearest last decimal.

d) The meter shall safely withstand the usual fluctuations arising during faults etc. The various limits shall be as per the relevant standards with latest amendments. These fluctuations shall not cause any damage to or mal-operation of the meter and shall retain the data under any adverse system conditions.

The meter should start registering energy at 0.1% of basic current (I_b) at UPF or lower. Rated maximum current shall be 1.2 times of I_b

e) The meter shall continue to function for the remaining healthy phase(s), in case one or two phases of VT supply fails. In case of a complete VT supply failure, the computation of average frequency shall be done only for the period during which the VT supply was available in the 15-minutes block.

f) Any time block contraction or elongation for clock correction shall also be duly accounted for and logged.

g) Errors in the energy measurement for all power factor angles from 0º to 360º shall be as per the standards specified in this specification.

h) The harmonics shall be filtered out while measuring Wh, Var and Varh and only fundamental frequency quantities shall be measured, computed, displayed & stored. Meter shall also measure, compute & display the Total Energy in Wh consisting of fundamental & harmonic energy for each 15-minute block separately.

i) The Electrical Requirements (Power Consumption, Influence of Supply Voltage, Influence of Self Heating, Influence of Heating, Insulation, Immunity to Earth/ Phase faults etc.), Electromagnetic Compatibility, Accuracy Requirements, Meter Constructional Requirements, Marking of Meter, Test & Test Conditions etc. shall be as per the relevant standards unless specifically modified in these specifications.

j) The meter shall have the provision of recording/display Maximum Demand, MD resetting and MD Count also.

9.0 Climatic Conditions: The meter shall be suitable to work satisfactorily under the climatic conditions of temperature & humidity as defined in the relevant standards. Further climate conditions of Punjab should also be kept in view as listed in the specifications)

10.0 A.C. Supply System:

The supply shall be through CT & PT connection of the respective EHV/ HV feeder as follows.

a). Rated secondary voltage Vref. : 110V Phase to Phase (110/√3V P.N.)
b). Rated secondary current of CTs I_b : 1Amp/ 5 Amp
c). Voltage variation : V reference + 20% to -30%
d). Frequency : 50HZ +/- 5%
e). Power Factor : Zero to unity (lagging or leading) in all the four quadrants
f). System : 3-phase 4-wire

11.0 Test Output:

Each meter shall have a test output device (visual) for checking the accuracy of active energy (Wh) measurement as per the relevant standards. Test output device may be in the form of a pulse indicator accessible from the front and capable of being monitored by suitable testing equipment as per the relevant standards.

12.0 Self Diagnostic Feature:

The meter shall be capable of performing complete self diagnostic check to monitor the circuits for any malfunctioning to ensure integrity of data memory location all the time. The meter shall have indications for unsatisfactory, nonfunctioning & malfunctioning of the following at least:

a) Internal Clock/ Date and Time with respect to the DCD/ CMRI/ GPS etc.

b)All display segments as per the requirement under G 19 of IS 14697.

The details of any type of malfunctioning should be logged with time and date in the meter. The details of self-diagnostic capability feature should be furnished by the meter manufacturer.

13.0 Meter Power Supply Arrangement:

The meter must be capable to operate with the power drawn from the PT/CVT secondary circuits. The total burden imposed on CTs & PTs by the meter for measurement and operation shall be as per the relevant standards. While operating with supply from PT/CVT, the meter shall not require any separate auxiliary supply for their normal operation.

It shall be preferable that Meter has provision for connecting external auxiliary supply (AC and/ or DC normally available at grid substations) so that meter may not unnecessarily load the bus bar/ line PT/ CVT during its normal operation. Priority of meter operational supply should be first external and if external is not available or switched off then from PT/CVT. Such changeover shall preferably be also logged.

Further, the meter shall be capable to display & data downloading of the stored quantities through either an internal in-built or external power pack battery. The batteries provided for Display/ Optical Port downloading etc shall have life of not less than 10 years. The batteries shall not get damaged or damage the meter even during idle storage of the meter for two years. Adequate protection must be in built to safeguard against damage to meter on account of application of high or wrong type of voltage at external battery terminals etc.

14.0 Clock Battery:

The clock operation in the meter shall not be disturbed in any event. In case of failure of power supply, the meter shall be capable of continued operation of the meter's calendar-clock with the help of internal clock battery. The batteries provided for RTC shall have life of not less than 10 years. The battery shall not get damaged or damage the meter even during idle storage of the meter for two years.

15.0 Real Time Clock

Each meter shall have a built-in calendar and clock, having an accuracy of ±2 minutes per year or better. The calendar and clock shall be correctly set at the manufacturer's works to the Indian standard time. The date (dd/mm/yyyy) and time (HH24: MM) shall be displayed on the meter front while data scrolling. Feature for keeping the time of clocks synchronized with GPS device time should be available via communication port. Meter Software shall have provision for recording reading on 29th Feb. of leap year without manually intervention/ setting etc.

Limited clock adjustment shall also be possible at site, in case of GPS device/ system is not provided, by using the DCD/ CMRI. When an advance or retard command is given through DCD/ CMRI, six subsequent time blocks shall be contracted or elongated by ten seconds each. The meter shall not accept another clock correction command for seven

days. All clock corrections shall be logged in the meter's memory and suitably shown on print out of collected data.
Further if the meter clock has drifted so much that it is not possible to correct the meter clock as specified in this specification then it must also be indicated/ logged in the log files. All attempts to synchronize/ actual synchronizing of the meter clock through DCD/ CMRI may also be indicated/ logged in the log files.

16.0 Programmable Parameters:

The meter may have following Programmable (P)/ Non Programmable (NP) parameters:

Sr.	Information	Type	Pass word	From		
				Meter	DCD/ CMRI	Remote/ BCS/ Master
1	Real Time Clock	P	Y	N	Y (Limited as specified)	Y
2	Demand Integration Period	P	Y	N	Y	Y
3	Meter ID/ Identification	P	Y	N	Y	Y
4	Relevant settings in respect of ports for communication	P	Y	N	Y	Y

The change in programmable parameters must be logged. The supplier shall furnish complete details of all the programmable parameters/ facilities under following categories (i) Factory Programmable (ii) User Programmable.

Certain programmable parameters/ features may be available in the meters (e.g. CT/PT error compensation curves etc) by default, but may not be desirable for protecting the interest of purchaser. It should be possible to **permanently disable** such programmable parameters/ features etc. as may be specified by the Purchaser as and when desired.

17.0 Communication Capabilities:

Each of the meter/ meter rack shall be provided with an accessible & sealable galvanically isolated Optical port (i.e. IEC 1107 etc.) & two electrical communication ports (e.g. RS-485/ RJ-45/ RS-232 port etc.) preferably with open standard protocols for remote communication. All three ports shall be of universal type conforming to relevant standard so that these can be easily connected to a DCD/ CMRI/ MODEM/ Cable (e.g. GSM/ GPRS/ CDMA/ PLCC/ Microwave/ Radio/ VSAT/ Leased Line/ PSTN/ VPN/ Ethernet etc.)/ Laptop/ PC/ GPS Time device for data communication/ time synchronization etc. The ports shall be integral part of body and sealable. There shall be provision of passwords for online/ offline data retrieval/ changing the configuration. Collected data in meter shall not be reprogrammable/ modifiable through any of the externally provided or internally provided (if any) ports for maintaining data integrity. Accuracy of the meter should not deteriorate when communication with any of the ports is going on individually or simultaneously.
Optical Port: The overall **intention of the optical port** for each meter (or a common optical port for a meter rack) on its front is to tap the data stored in the non-volatile memory/ time correction/ limited configuration changes thorough Portable or hand held data collection device (DCD/ CMRI). The DCD/ CMRI shall serve as the interface

between the meter specified above and the personal computer (PC). It shall also be possible to obtain a print out (hard copy) of all data collected from the meter, using the local PC. Time required for downloading the complete stored data/ logs etc must be reasonable & practicable and to be mentioned by the supplier.

Electrical Communication port (2 Nos): The overall **intention of the 2 Nos electrical communication port** is for **online data communication** of all the instantaneous/ current averages/ cumulative values and **offline data retrieval**/ tapping of stored values preferably through open standard protocols through suitable communication device/ media from personal computer/ data collection center/ Base Computer systems/ AMR systems/ SCADA RTUs (Remote terminal Units) etc.

First Electrical Communication Port: Out of two electrical communication ports specified, one port will be used for interfacing the meter (in the near future) with SCADA/ RTU which shall be located at the substation itself, where the meter/s are proposed be installed. SCADA/ RTU shall act as data concentrator and shall make available the time stamped data to SLDC Operators & Local Substation Operator on LDMS (Local Display & Management System) from the meters as well as other substation equipment. For this purpose first electrical communication port can have either or all of these open standard protocols IEC60870-5-101, IEC60870-5-104, IEC61850, Modbus, DNP3 protocols may be by using converters etc. To be compatible with RTUs, it should be possible to configure & it shall be the responsibility of the supplier to configure on site the protocol of the first electrical port of the meter with the specified inter-operability profile to be specified later on by the purchaser, so that meter could talk with RTUs. Necessary documents, settings, source code, tools, compiles etc., what so ever is required for this purpose shall be supplied by the bidder so that purchaser may on its own or by engaging any third party to undertake this activity in case of default by the bidder. Also the present configured inter-operability profile of the Meter/ protocol for this port should be supplied with the tender. Overall intention of first electrical communication port is to provide a refresh rate of 10 seconds or better for online monitoring purpose via SCADA/ RTU.

Second Electrical Communication Port: Second electrical communication port specified shall be used for immediate & independent remote communication with proposed energy center to be located at SLDC, Ablowal either through GPRS/ GSM/ 3G/ CDMA/ PLCC/ Microwave/ Radio/ VSAT/ Leased Line/ PSTN/ VPN or any other media/ mode to be implemented by the bidder/ SI. For this purpose preferably open standard protocol such as IEC60870-5-104, IEC60870-5-101, DLMS-COSEM (BIS specified), etc. or any proprietary protocol (alongwith complete details, source code, libraries, usage examples, documents, APIs, tools, compilers, step by step procedure, etc shall be required to be made available by supplier, so that if needed third party could be engaged to develop interface capability at Control center end in case of any default by the supplier and to protect purchaser's interest & investments. Overall intention in selection of the protocol for this port is to provide a refresh rate of 10 seconds or better for the specified parameters for online monitoring purpose along with making available the offline/ stored/ load survey data from the same port to the energy center.

The Host/ Base station at energy center/ RTU and the meter shall preferably follow Master-Slave relationship with meter as slave.

Further Second Electrical Port and Optical Port can be an independent or an internally shared port but must have separate optical interface and electrical interface available outside for user connections. Further in case of internal share of these ports it should be possible that any changes made in the meter configuration must be logged identifying the external interface from which such changes are made.

Online data communication: For the purpose of **Online data communication,** Instantaneous/ present averages/ cumulative values means the actual values at the latest instance of time. These values will be continuously updated by the meter hardware as per internal sampling and computation time. The value read is always the last updated and shall be date and time stamped. The measurement and computation of each of these parameters shall be based on accepted methods. At any instant a snap shot of all/ any selected out of the instantaneous/ current averages/ cumulative values shall be readable by the host. Further during online response, the meter may indicate to the master about its emergent status (such as log overflow, storage capacity overflow etc, anomaly, attempted fraud etc, if any) so that master may take appropriate action in advance.

Offline data communication: The purpose of **Offline data communication** is to get stored values/ logs/ Name plate details/ current configuration details etc as well as remote programming of defined programmable parameters/ time synchronization commands etc from master to the meter. Offline data will normally be downloaded once a day (after midnight) but it must be possible to download it any time for any period (out of available data in meter storage) as the master/ host system may desire.

Offline data be downloadable in suitable chunks/ parts so that Host/ master may prioritize online & offline communication simultaneously, so that offline data communication once started may not hang/ clog data communication path keeping in view its bulk.

Online/ Offline Data communication operation shall not erase the data from the meter's memory, or effect the meter operation in any way. No hardware and software changes except configuration changes may be required for online/ offline communication through comm. port when ever the port may be used with suitable communication as and when desired or decided.

Further the meter manufacturer must supply the details, settings & requirements of the any protocol which will be necessary for interfacing the meter with the personal computer/ data collection centre/ Base Computer systems/ AMR systems etc for online and offline data communications

18.0 DCD/ CMRI & PC Software (Basic Utilities):

The meter supplier/ manufacturer shall provide the necessary licensed software which would enable an IBM-Compatible PC to:

a) Accept the data from the DCD/ CMRI (especially from DCD/ CMRI already available with erstwhile PSEB procured from M/s Signals & Systems (India) Pvt. Ltd., Chennai bearing model No. CMRI – 1010) and/ or from an interface device connected to the Optical Port and store it in a tamper proof file in binary/ encrypted/ password protected etc read only format for tapping all data stored in a meter's memory and faithfully transferring it to the IBM Compatible PC. The intention is to ensure absolutely no tampering (except total erasure) of the colleted data file while handling that file with PC.

b) For reading that binary/ encrypted/ password protected etc. read-only data file, the meter supplier must give a utility program/ software to convert that data to MS Excel format/ text file etc. Use of the utility must be user friendly/ understandable by a computer savvy person/ easy to use with requisite help/ documentation. The above utility must also be available free of cost as an ActiveX/ COM/ DCOM etc component (with complete documentation with examples source code snippets in VBA/ VB/ C etc) so as to be useable as an embedded software component with third party Billing/ Base station software.

c) Name of the data file should be such that meter should be identifiable preferably data period shall also be identifiable. For example the Name of the data file for Meter with Sr No xxxxxxxx and with data for the period 01/02/2009 to 28/02/2009 could be xxxxxxxx_20090201_20090228.dat etc.

d) Data collected above through DCD/ CMRI must show all the values of stored quantities as specified as well as the set values of all the programmable parameters, Meter Name Plate Details as well as logs of Parameter Changes/ Clock Correction/ Abnormal Conditions / Tamper/ Fraud Conditions etc.

e) The software for PCs & DCD/ CMRIs shall be supplied in suitable and compatible form/ media to enable its easy loading into the IBM-Compatible as well as existing DCD/ CMRIs in erstwhile PSEB along with backup copies on CD.

f) Data tapping operation shall not erase the data from the meter's memory, or effect the meter operation in any way.

g) The software in DCD/ CMRI shall be simple to operate & foolproof. For example the data tapping from the coupled meter's memory shall start on pressing of a key, another key to start data transfer to the PC, and an indication, which would indicate completion of data collection, keep indicating while the data is held in the device and would stop indicating when all data has been transferred to the PC etc.

h) DCD/ CMRI software shall also have the necessary feature for time synchronization/ setting of the real time clock of the SEMs while downloading of the data as specified. The DCD/ CMRI software should have features to manually set/ auto synchronizes with BCS, the time in itself before hand. Further if the meter clock has drifted so much that it is not possible to correct the meter clock as specified then it must also be indicated in the log file being transferred to the DCD/ CMRI from the meter. Also attempts to synchronize/ actual synchronizing of the meter clock through DCD/ CMRI be also indicated in the log files.

i) In case of any discrepancy in tapping of meter data by DCD/ CMRI (i.e. DCD/ CMRI already available within erstwhile PSEB procured from M/s Signals & Systems (India) Pvt. Ltd., Chennai bearing model No. CMRI – 1010), ABT meter supplier shall install the required software in DCD/CMRI for making it compatible with the ABT meter software. However, if due to some reasons the existing DCD/ CMRI are not suitable, then the meter manufacturer must also supply the DCD/ CMRI.

j) Collected data shall be stored on the base computer in original tamper proof binary/ encrypted format file as well as MS Excel/ Text file.

k) It should be possible to display & print the collected data on PC's screen in MS-Excel / Text format.

l) It should be possible to store the original collected data in binary format, on a floppy disc/ CD/ DVD/ Pen drive.

m) The DCD/ CMRI software should be suitable for reading, down loading of multiple meter data, Time Setting in DCD/ CMRI, Time correction for Meter as specified, and other relevant configurations/programmable parameters in the meter. All such changes/ configurations should be password protected and logged in the meter with date & time.

n) The necessary training if required as well as detailed & easily understandable manuals/ documentation for this purpose shall also be provided.

19.0 Sealing of Meter:

Proper sealing arrangements shall be provided on the meter to make it tamper-proof. Provision of at least two seals on the meter body, one seal on the terminals block and one separate seal on optical port should be available. Sealing arrangement of communication ports must also be provided.

20.0 Meter Construction:

The meter shall be made of high quality materials/ components to ensure high reliability and long life. The meter shall be supplied housed in compact and sturdy, metallic or moulded cases of non-rusting construction and finish. The cases shall be designed for mounting on a plane, vertical surface such as a control & relay panel front/ inside a metal box etc. All terminals for CT and PT connections shall be arranged in a row and shall have easy accessibility when terminal cover is open and no accessibility when terminal cover is closed. Terminals shall have a suitable construction with barriers and cover, to provide a secure and safe connection of CT and PT leads through stranded copper conductors of 4 sq mm sizes. Minimum Clearance & Creepage Distance shall be as per the relevant standards.

The meter shall also withstand without any damage or mal-operation reasonable mechanical shocks, earthquake forces, ambient temperature variations, relative humidity etc as per relevant standards. They shall have an IP-51 of ISI2063 category dust tight construction, and shall be capable of satisfactory operation in an indoor, non-air conditioned installation. It shall be immune to vibration and shocks during transportation and handling. It should also be immune to external magnetic & electric fields as per CBIP-88-June 2000 edition.

All the materials and electronic power components used in the manufacture of the meter shall be of highest quality and reputed make to ensure higher reliability, longer life and sustained accuracy.

The meter shall be designed with application of specific integrated circuits. The electronic components shall be mounted on the printed circuit board. All insulating materials used in the construction of meter shall be non-hygroscopic, non-aging and of tested quality.

All parts that are likely to develop corrosion shall be effectively protected against corrosion by providing suitable protective coating. Any protective coating shall not be liable to damage by ordinary handling nor damage due to exposure to air under normal working conditions

The meter shall have operation indication device such as a blinking LEDs and/ or LCD indications, alphanumeric display, sealing arrangements, mounting arrangements etc as specified in this specifications. The terminal cover design shall be pilfer proof.

Meter shall be designed and constructed in such a way so as to avoid causing any danger during normal use. However the following should be ensured:

(i) Personnel safety against electric shock
(ii) Personnel safety against effects of excessive temperature
(iii) Protection against spread of fire
(iv) Protection against penetration of solid objects, dust and water in normal working condition.
(v) Protection against fraud/ prevention against pilferage.

The meter construction should conform to CBIP reports with latest amendments.

21.0 Metering Cubicle:

In case of rack type meter, a MS metering cubicle shall also be provided to mount the meter and associated TTBs. Metering cubicle (i.e. Rack/Panel/Metal Box) shall be designed to accommodate one/two racks/ rows each with 2/3/4 meter. Metering cubicle shall be pre-wired and shall have door switch and space heater controlled by thermostat and switch. The cubicle shall be made of 2 mm CRCA for load bearing members and 1.6 mm CRCA for doors and covers. The cubicle shall be confirming to IP-54 of ISI2063and properly treated and painted with light grey shade no 631 as per IS5. Optionally in case of Metering Cubical a common Display, common Optical Port & common communication port may be provided.

22.0 Connection Diagram & Terminal Marking:

The general scheme of Connection Diagram & Terminal Marking shall be as per the relevant standards. The connection diagram of the metering module shall be clearly shown appropriately on the meter. The meter terminals shall also be marked and this marking should appear in the above diagram. In case any special precautions need to be taken at the time of testing/ installation of the meter the same may be indicated along with the circuit diagram. Phase sequence shall be marked on the diagram of connections.

23.0 Quality Assurance:

The meter manufacturer must have a quality control/ assurance (QA) procedure/ plan for manufacturing of the specified equipment generally based on the established and proven practices of the manufacturer.

24.0 Type/ Routine Tests

Meter must be Type tested and Type test certificates issued by any national laboratory accredited from NABL for the offered model shall be made available. The Type tests as well as Routine tests shall be carried out strictly as described in the relevant sections of IS 14697/ CBIP technical report -88 publications and with latest amendments thereafter.

25.0 Acceptance Testing

A) Meter:

Meter shall be duly tested & certified that it is suitable for the purpose as per the relevant standards & CBIP-88 report (Latest Amendments). In addition, each and every meter shall be subjected to the following acceptance tests:

a) Functional checks for display and memory.
b) Accuracy of the calendar and clock. (Method should be given by the manufacturer)
c) Accuracy of Wh, Varh, voltage, frequency measurement etc. shall be checked at the steps of 0.5 Hz over the full frequency range in case of ABT meters only
d) Testing of internal/ external power pack battery arrangement as well as meter Burden/ Wattage
e) Testing for all tampers, frauds and anomaly may be carried out for compliance as specified.
f) Working, suitability, functions etc of Optical Port as well as communication port as specified.

B) Acceptance Testing of DCD/ CMRI software and PC software:

DCD/ CMRIs software and PC software (utilities) supplied by the meter supplier must be installable on the specified DCD/ CMRIs & PCs to verify that they are suitable/ user friendly for the specified purpose. Both software after installation as specified shall be subjected to the following acceptance test:

a) Method of installation on DCD/ CMRI as specified
b) Functional checks as specified
c) Downloading Meter Data from the Meter through optical port
d) Downloading data/ file to PC as specified
e) Tamper proof nature of the data/ file downloaded to the PC.
f) Conversion of the data file to MS Excel/ Txt format as specified and verification of such converted files against original data files from meter.
g) Functioning of auto time synchronization/ setting of the real time clock of the meter while downloading of the data or otherwise as specified.
h) The DCD/ CMRI software should have features to set/ synchronize the time in itself before hand.
i) Proper functioning of advance and retard time commands.
j) Per meter downloading time verification
k) Capacity of DCD/ CMRI software for data storage

26.0 Manuals:

The meter must have detailed user friendly manual having operational details, configuration change procedures and maintenance procedures of meter/ DCD/ CMRI software/ PC software and also shall provide the Memory mapping detail of the Meter for online & offline monitoring. A user-friendly manual covering remedial measures to be taken by the users in day to day operation of Meter/ DCD/ CMRI is required to be provided by the manufacturer.

27.0 Warranty

The meter should carry a warranty for a period of Comprehensive O&M. If any equipment/ meter/ software fail during this period, the firm shall carry out free replacement within 30 days of notification.

28.0 Packing:

The meter shall be properly packed in suitable packing to avoid damage or disturbance during transit or handling, to ensure their safe arrival at destination and long-term storage. Each meter may be suitably packed in the first instance to prevent ingress of moisture and dust and placed in a cushioned carton of a suitable material to prevent damage due to shakes in transit. The lid of the carton may be suitable sealed. A suitable number of sealed cartons may be packed in a case of adequate strength with extra cushioning, if considered necessary. The cases may be than properly sealed against accidental opening in transit. The packing cases may be marked to indicate the fragile nature of the contents.

29.0 Tamper, Fraud, Anomaly Detection/ Logging of Incidents:

The meter shall have the following special features to prevent/ detect common ways of tamper and fraud and record/ log the same with date & time of occurrence, duration, count etc. However detection mechanism should ignore momentary/ transient occurrences of these, which are below appropriate thresholds and specify the same clearly in the meter manual/ literature.

a) **Phase sequence Reversal:** The meter shall keep working accurately irrespective of the phase sequence of supply.
b) **Missing Potential:** The meter shall record/ log occurrence of missing of one/ two potential as per the relevant standards.
c) Meter shall work accurately during the tamper conditions of neutral disturbance i.e. when DC voltage/ High Frequency is fed to neutral.
d) The meter should be provided with magnetic shielding so that any external magnetic field (AC/DC Electro magnetic or Standalone Magnet) as per the value specified in CBIP reports no. 88 with latest amendments) should not affect the proper functioning of the meter.

e) Accuracy of the meter should not be affected with the application of the abnormal radiations/ voltages/ frequencies generating devices as per latest CBIP report if any. any where on the phase/ neutral circuits etc The accuracy of the meter should be checked before, & after these applications, and the accuracy of the meter during tamper shall be as per latest CBIP reports if any

f) Meter shall record the energy accurately under the effect of radiation emitted by mobile phone or such other devices. The test shall be carried out by bringing a mobile phone in the close proximity of the meter for 10 minutes when there is an incoming call and shall be checked under the following conditions:
   i) 10% I_b at UPF
   ii) 50% I_b at UPF
   iii) 100% I_b at UPF
   iv) 120% I_b at UPF

g) The offered meter shall also be capable to withstand and shall not get damaged if phase to phase voltage is applied between phase and neutral.

h) The meter should register energy correctly even when the load is not terminated back to the meter and instead the current is drawn through a local earth, if possible.

i) Tamper information and readings/ stored data should not be modifiable through CMRI or P.C. / Ports.

j) In case more than one tampers exist simultaneously/ then meter shall record all the tempers with date and time of occurrence/ duration.

k) Power Supply failure: The meter shall log the cases of failure of Self Power i.e. PT/CVT and its restoration with date and time.

l) Tampering data/ events should be recorded/ logged with date and time, firstly as per the recommendations of CBIP-88 Report (Latest Amendments), secondly as per the Relevant Standards or lastly as specified in the Specification in the relevant sections, in that order. And if not covered/ specified in any of the above then the recording should be to log the first occurrence and of last restoration along with total number and total duration of all such occurrences during the above period. It shall also record instantaneous data (for each phase) i.e. voltage, current, P.F. etc. Tampers shall be recorded if it persists for some (say 1 to 5 minutes) minutes continuously and once a tamper is detected by crossing the threshold time, any momentary normalizations/ restoration for less than 5 minutes thereafter be taken as single continuous tamper.

m) The meter shall have an appropriate display system by which any attempt of tampering the meter is promptly displayed with date and time tagging.

n) In case of any anomaly/ fraud/ tamper/ battery failure (preferably in advance)/ clock failure/ configuration change etc the meter should have a provision for alarm/ indication. However details of that particular exception should be stored & available through display. Latest one exception (with date/ time) should also scroll in the display along with the instantaneous values as specified. At least 200 Nos. tampering/ exception events (count, occurrence, restoration and duration) shall be logged with date and time.

o) Other possible tampers/ anomalies which can be detected/ logged shall be brought out by the vendor. Tamper information and readings should not be possible to change through CMRI or PC/ports.

30.0 Meter Identification/ Name Plate Details/ Marking of Meter:

Each Meter shall bear the information as per the relevant standards. Each meter shall have a unique serial number given by manufacturer, which shall be marked permanently on its front, as well as in its memory. Besides unique meter serial number the meter shall

have the provision for programming Meter ID/ Identification code/ string (at least 20 Characters) through DCD/ CMRI, Other markings on the meter shall be as per the relevant standards.

"Property of PSTCL" and meter manufacturer name shall be written on the meter name plate along with other Name Plate details as given below should also be available to be downloadable with DCD/ CMRI operation as well as through remote via comm. port.

Name Plate Details:

Sr.	Information
1	Meter Serial Number
2	Meter Constant (impulse/Wh)
3	Accuracy
4	Make
5	Model/ Type
6	Month/ Year of Manufacture
7	Configuration/ Settings
8	Firmware version
9	Rated secondary current of CT (1A or 5 A).
10	Reference Voltage, Frequency
11	Principal unit(s) of measurement
12	Warranty/ Guarantee Period etc
13	Any other which may be specified by the purchaser before commencement of supply.

31.0 Disclosure requirements:

Besides as stated in the relevant sections of the Specification, the meter manufacturer must also give the principle of operation of the meter, outlining the method and stages of computation of various parameters starting from input voltage and current signals including the sampling rate if applicable should be furnished by the supplier. The manufacturer should indicate the method adopted to transform the voltage and current to the desired low values with explanation on devices used such as CT, PT or Potential divider as to how they can be considered superior in maintaining ratio and phase angle for variation of influence quantities and during its service period. Details of memory used in the meter should be furnished by the manufacturer. This is in confirmation with the CBIP-88 reports.

B. Technical Specification of Conventional Energy Meters (Accuracy Class-0.2S

1.0 Scope:

The specification covers the design, engineering, manufacture, assembly, and testing of Static/ Electronic Conventional Trivector Type, Four Quadrant, Bi-Directional Energy Meter, suitable for 3-phase 4-wire or 3 phase 3 wire connections, solidly earthed system with balanced and un-balanced loads for a power factor range from zero to unity (lagging and leading), with initial and sustained accuracy of class 0.2S. The meter shall be suitable for being connected to voltage transformers (VTs) having a rated secondary line-to-line voltage of 110 V, and to current transformers (CTs) having a rated secondary current of 1A/5A. Any further transformers/ transducers required for their functioning shall be inbuilt in the meter. Necessary isolation and/ or suppression shall also be built-in for protecting the meter from surges, voltage spikes, fault-currents, EMI etc. that occur in the VT and CT circuits of extra high voltage switchyards. The

reference frequency shall be 50 Hz. The energy meter shall be rack/ panel/ metal box mounted with individual/ common/ both types of displays.

2.0 Same as in case of ABT type Meters

3.0 Conventions for Active Energy & Reactive Energy:

The Active Energy (Wh) and reactive energy (Varh) measurement shall be carried out with accuracy as per the standards for Class 0.2s. These quantities shall be computed directly in CT and VT secondary quantities. The Active Energy (Wh) shall have the positive sign if there is a energy export, and a minus sign if there is a energy import from the substation bus bars. In case of lagging reactive power is being sent out from substations busbars, Var display shall have a positive sign and if reactive power flow is in the reverse direction, Var display shall have a negative sign.

4.0 Power Quantity Measurements Requirements:

Instantaneous Power Quantities: (Y=Yes Required, N= Not Required)

Sr.	Parameter	Scrolling/ Cyclic Display		Remote Reading	Storage at the end of the block
		Current Block	Immediate Previous Block		
1	Current – $I_{r,}$ I_{y}, I_{b}	Y	N	Y	N
2	Voltage- $V_{rn,}$ V_{yn}, V_{bn}	Y	N	Y	N
3	Power Factor (Lag/Lead)	Y	N	Y	N
4	Frequency – (Hz)	Y	N	Y	N
5	Apparent Power	Y	N	Y	N
6	Active Power	Y	N	Y	N
7	Reactive Power	Y	N	Y	N
8	Real-Time Clock (Date & Time)	Y	N	Y	N
9	Maximum Demand (KW)	Y	N	Y	N
10	Maximum Demand (KVA)	Y	N	Y	N
11	Rising Demand with elapsed time (KW)	Y	N	Y	N
12	Rising Demand with elapsed time (KVA)	Y	N	Y	N

15-Minute Block Level Power Quantities (For 45-days):

Sr.	Parameter	Scrolling/ Cyclic Display		Remote Reading (Current Block Instantaneous as well as Immediate Previous Block)	Storage at the end of the block
		Current Block	Immediate Previous Block		
1	Active Energy Import	Y	Y	Y	Y
2	Active Energy Export	Y	Y	Y	Y
3	Reactive Energy Lag Import	Y	Y	Y	Y
4	Reactive Energy Lead Import	Y	Y	Y	Y
5	Reactive Energy Lag Export	Y	Y	Y	Y
6	Reactive Energy Lead Export	Y	Y	Y	Y
7	Apparent Energy Import	Y	Y	Y	Y
8	Apparent Energy Export	Y	Y	Y	Y
9	Total Energy (Fundamental + Harmonics)	Y	Y	Y	Y*

*(Optional depending upon availability of Storage)

Day Level Power Quantities (For 45 days):

Sr.	Parameter	Scrolling/ Cyclic Display		Remote Reading (Current Day Instantaneous as well as Immediate Previous Day))	Storage at the end of the day
		Current Day	Previous Day		
1	Day's Active Energy Import	Y	Y	Y	Y
2	Day's Active Energy Export	Y	Y	Y	Y
3	Count and Max/ Min Duration of	Y	N	Y	Y

	power off of feeder.				
4	Duration of Power off hours of the feeder.	Y	N	Y	Y
5	Apparent Energy Import	Y	Y	Y	Y
6	Apparent Energy Export	Y	Y	Y	Y
7	Day's Cumulative Apparent Energy (KVAh)	Y	Y	Y	Y

Perpetual Type Power Quantities:

Sr.	**Parameter**	**Scrolling/ Cyclic Display**		**Remote Reading (Instantaneous)**	**Storage**
		Current Block	**Previous Block**		
1	Cumulative Active Energy perpetual counter in Wh	Y	Y	Y	Y
2	Cumulative Apparent Energy perpetual counter in Vah	Y	Y	Y	Y
3	Cumulative Reactive Energy perpetual counter in Varh	Y	Y	Y	Y

All the MDI registers should be with date & time. MD resets count shall be available through push button as well as through remote.

Note: Signs may be used to represent Export/ Import/ Lag/ Lead in concurrence with the general scheme as specified in Active Energy & Reactive Energy section. Besides the above specified lists, complete list of available parameters for online monitoring & available parameters which are stored in the meter & are retrievable through ports or otherwise, available in the meter may also be supplied with the Bid.

5.0 to 6.0 same as in case of ABT meters specifications.
7.0 This clause of ABT meter specifications is not required.
8.0 to 31.0: Same as in case of ABT Meter specifications.

Annexure-V

CLIMATIC CONDITIONS

Sr. No.	Particulars	Conditions
1	Maximum temperature of air in shade	50°C
2	Minimum temperature of air in shade .	(-) 5°C
3	Maximum temperature of air in contact with metallic portion in sun	60 °C
4	Maximum daily average ambient temperature.	40°C
5	Maximum yearly average ambient temp.	35°C
6	Maximum relative humidity.	95%
7	Average number of thunder- storm days per annum.	60
8	Average number of dust storm days per annum.	40
9	Average number of days of fog per annum.	70
10	Average number of hailstorm days per annum.	5
11	Average number of rainy days per annum.	60
12	Average annual rain fall	More than 76cms
13	Number of months during which tropical monsoon conditions prevail.	3
14	Maximum wind pressure.	150kg/sq.M
15	Altitude above M.S.L.	Not exceeding 1000 mtrs
16	Sites are susceptible to earthquakes. The earthquake forces for which equipment to be designed : a) Horizontal direction b)Vertical direction	 0.3g 0.15g
17	Atmospheric pollution.	Heavy

Performa- I

Statement of Deviations

(From Complete RFP Requirements as specified)

Sr	Statement of deviations and variations	Remarks/ Explanation	Type of deviation (Technical/ Commercial/ Terms & Conditions/ Performa, Undertakings, Certificates, etc.)	Cross Reference (Section No., Page No., Para No.)

It is certified that the above mentioned deviations are the only deviations taken to fulfill the specified requirements in the RFP and there is no other deviations/ conditions/ non-compliance mentioned any where and if mentioned has no effect on the tendered proposal.

Further it is certified that the Proposal/ tender is complete in all respects. Every clause had been carefully studied before submission of a complete and comprehensive proposal/ tender. All the necessary certificates/ undertakings/ Deviations (Non-Compliance), Price Schedules etc as specified has been given in the Price Bid Performa. Any deviation (non-compliance) and/ or any difference necessitated from the specified performa are mentioned in the Statement of Deviations; even any deviation from the language of the certificates/ undertakings has been mentioned along with explanation. It is understood that failure to comply with any of these instructions or to offer unsatisfactory explanation for non-compliance is likely to render effective comparison of our proposal/ tender as a whole impossible and may lead to rejection of our otherwise competitively lowest offer.

SIGNATURE:

NAME:

DESIGNATION:

DATE: SEAL OF COMPANY

Performa -II

References of Similar Projects along with Contact Details of Concerned Persons

(To be contacted for any details/ confirmations etc. in respect of claims made in the submitted proposal)

Name of the SI :

Address :

Sr.	Execution Agency	Customer Name/ Project	Contact Persons	Contact Address	Mobile	Office No	Fax No	Email etc.
A	Executed by any other agency/ firm							
B	Executed by SI or any member							

SIGNATURE:

NAME:

DESIGNATION:

DATE: SEAL OF COMPANY

Performa-III

Undertaking Certificate

(On SI's Letterhead)

That the SI and/ or Consortium Members

i. Is/ Are not in litigation with PSTCL, PSPCL or erstwhile PSEB.
ii. Is/ Are not a defaulter for 25% or more quantity for more than 9 months or any quantity more than 15 months in making supplies against earlier purchase orders placed on them at the time of scheduled date of opening of this bid.
iii. Has/ Have not made misleading or false representations in the performas, statements and attachments submitted in proof of the qualification requirements.
iv. Does/ Do not have Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completions, litigation history, or financial failures etc. in earlier works executed with PSTCL/PSPCL.
v. Was/ were never been black listed by any company, Transco, organization or government body.
vi. Has/ Have thorough understanding of ABT scheme & Energy auditing at transmission level, agrees with and has capability to fulfill the scope of this RFP and are further willing to understand the user specific requirements from time to time & adaptation of ABT as implemented in Punjab and accordingly implement & suitably modify the same as it may change during the pendency of the Contract including during Compressive O&M period.
vii. Would not pay any commission etc. or engage any commission agent or liaison agent for dealing with PSTCL in any matter including purchase of equipment. No officer/official of the PSTCL will deal with any person who claims to be a commission agent or liaison agent of any company and that the officers/ officials of the PSTCL must deal only with persons directly employed by the Suppliers.
viii. Has/ Have office in Punjab with sufficient personnel and inventory of spares and Address of the same is as under:

OR Does not/ don't have any office/ presence in Punjab and commit to open the same with sufficient personnel and inventory of spares within a month on selection as successful SI.

ix. Is/ Are providing the solution complying with all the Technical Specification Requirements as has been mentioned in the RFP.
x. Has/ Have willingness for extension in Comprehensive O&M on mutually accepted terms & conditions for further period beyond 7 years as specified.
xi. Agree/s that Life span of the supplied system is 15 years
xii. Certify that will make available the spares after comprehensive O&M period on payment basis to substitute the faulty equipment and/ or shall supply the spares for the system's expansion for life span as specified.
xiii. Shall provide continued support (on technical aspects, etc.) free of cost for at least five years even after expiry of Comprehensive O&M. Service support if required shall be on payable basis during such period.
xiv. Has done the complete initial survey/feasibility study in respect of communication connectivity at all the locations and has proposed the communication media along with the offered system accordingly.

SIGNATURE:
NAME:
DESIGNATION:

DATE: SEAL OF COMPANY

Performa-IV

TECHNICAL EXPERIENCE & GENERAL CAPABILITY

Name of the SI :

Address :

i) The SI (any member of the consortium) must have prior experience or presently engaged in establishing Automatic Remote Meter Reading systems in any power sector utility:

Sr. No.	Name of Power Sector Utility	Name of Project/ User (With Contact Details)	Whether Commissioned/ under implementation.	P.O. No. & Date	Cross Reference (Section No., Page No., Para No.)

The SI (any member of the consortium) must have the experience of having successfully commissioned at least one on-line ABT monitoring system in a power generation, transmission or distribution utility and same should have been in successful operation.

Sr. No.	SI/ Member	Name of Project/ User/ Type (Discom, Transco, Gencom) (With Contact Details)	Certificate of Successful commissioning from end user (to be attached)	P.O. No. & Date	Cross Reference (Section No., Page No., Para No.)

The SI (any member of the consortium) must have the experience of having successfully commissioned the remote meter reading project by using either of the following communication technologies i.e. GPRS/ GSM/ 3G/ CDMA/ V-SAT/ OF/ OPGW/ Microwave/ PLCC/ RF/ LPR/ Radio/ Leased Lines/ MLPS-VPN/ M2M etc. and/ or any combination of these as specified).

Sr. No.	SI/ Member	Name of Project/ User (With Contact Details)	Communic-ation Technology Used	Certificate of Successful commissioning from end user (to be attached)	P.O. No. & Date	Cross Reference (Section No., Page No., Para No.)

The SI or any member of the consortium must have the experience in Software Development, Software Customization, Display Building, Report Customization, etc. suitable for the intended purpose.

Sr. No.	SI/ Member	Name of Project/ User/ Type (With Contact Details)	Certificate of Successful commissioning from end user (to be attached)	P.O. No. & Date	Cross Reference (Section No., Page No, Para No)

ii) Profile of Key Personnel Handling the Job

Sr. No.	Name of Engineer	Designation	Details of Experience	Remarks/ Cross Ref

iii) Details of Orders in Hand or in Pipe Line

Sr. No.	Description of Work	Name & address of the ordering authority	Value of the contract	Remarks/ Cross Ref.

SIGNATURE:

NAME:

DESIGNATION:

DATE: SEAL OF COMPANY

Performa-V

Financial Statement

Name of the SI :

Address :

To be filled in for SI, each Member of Consortium.

Fiscal year (immediate last five)	Turnover (In INR)	Cross Reference (Section No., Page No, Para no)	Net Profit/ loss after tax (In INR)	Cross Reference (Section No., Page No, Para no)
2006-07				
2007-08				
2008-09				
2009-10				
2010-11				

SIGNATURE:

NAME:

DESIGNATION:

DATE: SEAL OF COMPANY

Performa-VI

Contact Details of SI & Members' (if any) Concerned Persons

(To be contacted for any details/ clarifications etc. in respect of the submitted proposal)

Name of the SI :

Address :

Sr. No.	SI/ Member	Contact Persons	Contact Address	Mobile	Office No.	Fax No.	Email etc.

Manufacturing Works Details

Sr. No.	SI/ Member	Work Description along with Tools & Tackles available	Work Address	Office No.	Fax No

SIGNATURE:

NAME:

DESIGNATION:

DATE: SEAL OF COMPANY

Performa –VII

Covering Letter

On Applicant's letterhead Date: dd/mm/yyyy

To
Chief Engineer/ SO&C
SLDC Projects,
SLDC Building, 220kV Grid Sub-Station,
PSTCL, Ablowal (Patiala)-147001

Reference: RFP Tender No …….Dated ……..

Subject: Submission of Bid Proposal for RFP "Selection of System Integrator for complete implementation on turnkey basis & comprehensive O&M services in respect of Intrastate Boundary Metering Scheme suitable for SLDC operations based upon ABT type energy meters"

Sir,

In response to the advertisement dated _____ issued by Punjab State Transmission Corp. Ltd., we offer our bid proposal to participate in the bidding process for selection of the 'System Integrator or SI' for the above-referred Project.

We have examined the RFP Documents, Service Level Agreement, etc. including Addenda/ Amendments to the above, for the execution of the above Contract, we the undersigned offer to survey, design, procure, complete, commission, implement and operate and maintain the whole of the said Work, as per the Terms & Conditions of the RFP except for those which have been specifically been brought out in the Statement of Deviation.

In the capacity of the SI/ Lead Member of Consortium for the Project, we declare that we have requisite technical competence and experience as specified and are interested in successfully implementing and Comprehensive O&M of the Project as specified, should PSTCL select us for this purpose.

We are submitting this Bid on our own and are dealing in all the three components of the whole proposed project (i) ABT Meters, (ii) Communication Service Provider for the offered medium & (iii) Centralized Energy Centre based upon Computer H/W & S/W

(OR)

We are submitting this Bid as the Lead Partner of a consortium consisting of the following companies/ firms:

Sr	Company/Firm Name	Area of Responsibility (ABT/ Conventional Meters, Communication Service Provider of the offered medium, Centralized Energy Centre)	Address with Contact Details.

We are enclosing Power(s) of Attorney from the other consortium Members authorizing us to act as 'Lead Partner' for this Project and confirming that all participating members are jointly and severally liable for participating in the proposal and performance of the contract, if awarded. We are also enclosing Power of Attorney for the person who is signing the bid.

If selected, we understand that it would be on the basis of the organizational, technical, financial capabilities and experience of the consortium members as specified in the Request for Proposal document. We understand that the basis for our qualification will be our meeting the qualification requirements & terms & conditions as specified, and that any circumstance affecting our continued eligibility under the RFP, or any circumstance which would lead or have lead to our disqualification under the RFP, shall result in our disqualification under this process.

We agree to abide by this bid for **180** days from the last day of submission of bid and the same shall remain binding upon us and may be accepted to be increased for suitable periods as may be required by Purchaser, at any time before the expiration of that period. If requested to extend the period of validity for a specified additional period, we understand that no change in the bid will be allowed for such extension and in case, we extend the validity of our bid, we will extend validity of Bid Security also.

We declare that we have disclosed all material information, facts and circumstances to PSTCL, which would be relevant to and have a bearing on the evaluation of our Qualifications for the Bid and selection.

We again acknowledge and understand the essence of the stipulations of the RFP and will abide by these and shall have complete & absolute responsibility of implementation of the system and its O&M as stated in the RFP.

We further acknowledge and understand that in the event that PSTCL discovers anything contrary to our above declarations; it is empowered to forthwith disqualify us and our Bid from further participation in the process.

We, the undersigned SIs, having read and examined in detail the specifications and all bidding documents in respect of above RFP do hereby abide to supply the equipment and provide the services at the prices and rates mentioned in this bid.

We do hereby undertake that, in the event of acceptance of our bid, the supply of equipment and commencement of services shall be made as stipulated in the schedule of delivery forming a part of the attached technical bid.

In the event of acceptance of our bid, we do hereby undertake that:

i. To supply the equipment and commence services as stipulated in the schedule of delivery forming a part of the attached technical bid
ii. We affirm that the prices quoted are inclusive of delivery, installation, and commissioning charges and all sales/ service taxes. (Octroi and any local levies will be charged on actual on submission of proof of remittance)
iii. Prices offered are firm in Indian Rupees and payments shall be acceptable in Indian Rupees.

We enclose herewith the complete Techno-Commercial Bid as required by you. This includes Part-I, Part-II & Part-III of the three part bid as required.

We have also enclosed a demand draft (No._____) for Rs. 2500/- in favor of AO/SLDC, PSTCL, Ablowal (Patiala) in respect of cost of specification and a demand draft (No._____) for Rs. _____/- against Earnest Money Deposit issued by _____ (bank), valid till ___/___/_____ (dd/mm/yyyy), in favor of AO/SLDC, PSTCL, Ablowal (Patiala) in the cover containing qualifying requirements. Our offer contains all the Performa and Annexure as specified.

We do hereby undertake, that, until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and notification of award of contract, shall constitute a binding contract between us.

Yours faithfully,

Authorized Signatory

Name and Title of the Signatory

Date & Seal of the Company

Performa -VIII

Detailed Write-up on the Proposed Solution to meet with the Technical Requirements as described in the RFP

Name of the SI :

Address :

Number of Pages :

No.	Description	Page No.

Note: A detailed write-up along with Solution Design (As annexure) of the proposed solution along with detailed schematics showing the various components, modules, etc. whether hardware or software along with their respective functions, uses etc. should be given here. Features/ specifications of the offered solution and sub components/ modules should also be listed and described along with detailed Pros & cons of the offered solution/s should also be discussed in here. As many pages as may be required may be attached. But all the write-up here should be readable in a single reading to understand the offered solution so as such pamphlets, brochures of the offered components should not be attached here, but a write-up specific to this proposal may be attached. This will carry weightage in techno-commercial bid evaluation as specified.

SIGNATURE:

NAME:

DESIGNATION:

DATE: SEAL OF COMPANY

Performa –IX(A)

Check list-cum-Technical Particular Sheet for ABT Meters

Sr	Description	Actual Values to be filled in by SI instead of writing complied/ Ok etc. where ever applicable	Cross Reference
1.	Manufacturer's Name & Country		
2.	Meter Make, Series, Model		
3.	Type		
4.	Accuracy class (0.2s)		
5.	Basic Current (Amp)		
6.	Maximum Continuous current (A)		
7.	Standard reference voltage (V)		
8.	Standard reference frequency (Hz)		
9.	Power loss in each current circuit at basic current		
10.	Power loss in each voltage circuit at reference voltage and frequency.		
11.	VA Burden on CT/PT circuit (As per IS:14697)		
12.	Whether meter carries ISI mark		
13.	a) Over load capacity		
14.	b) Variation of voltages and frequency at which the meter functions satisfactory		
15.	Details of Rating a) Voltage		
	b) Current		
16.	Expected Life of the meter		
17.	Dimensions		
18.	Weight (approx.)		
19.	Memory storage capacity (MB)		
20.	Various Standards to which meter conforms		
21.	Complete list of Power Quantities parameters available in meter for Display, Remote Communication, through Optical Port, Load survey i.e. Stored etc.		
22.	Whether all the parameters indicated in specifications are available i.e. (i) Instantaneous parameters		

	(ii) 15 minutes block level parameters (iii) Perpetual type parameters (iv) Day level parameters Please indicate which of the specified parameters are not available.		
23.	Sign of power/ energy import & export as indicated by the meter		
24.	Meter display type (LCD/ LED/ Etc.)		
25.	No. of digits/ character displayed		
26.	Size of digits/ character displayed		
27.	Non volatile memory retention period in absence of power (Minimum 10 years)		
28.	Storage Capacity in days for specified Parameters (Minimum 45 days)		
29.	Display roll over period		
30.	VT supply failure indication		
31.	Requirement for special power quantity measurement/ display / storage/ protection		
32.	Whether fulfill the Climatic conditions (under which meter work satisfactorily) As per Annexure-V		
33.	Maximum error (Accuracy) due to variation in Voltage (+ 20% - 30%.)		
34.	Maximum error (Accuracy) due to variation in Frequency. (50 (+/-) 5% HZ)		
35.	Maximum error (Accuracy) due to variation in Power Factor (Zero to unity (lagging or leading) in all the four quadrants)		
36.	Test output device		
37.	List of Self Diagnostic feature		
38.	Meter Power Supply Arrangement (VT Operated only or Provision for External Power Supply is also available)		
39.	Built in Calendar & Clock Accuracy (Minimum ±2 minutes per year)		
40.	Details of Built Real Time Clock's synchronization/ adjustments Procedure		

41. 42.	Built in Calendar & Clock's Guaranteed life (Minimum 10 years)		
43.	Factory Programmable Parameters (Detail List)		
44.	User Programmable Parameters (Detail List)		
45.	Whether possible to disable some feature/ functions/ programmable parameters permanently		
46.	Communication Ports Supplied a) Optical port for Local b) First communication port for interfacing meter with SCADA/RTU c) Second communication port for independent remote communication d) Whether Load survey data of selective period can be downloaded remotely from the meter (Yes/No) e) Does the meter support 10 Second or better refresh rate from both the electrical ports as specified.		
47.	Number of Communication Ports		
48.	Optical port for Local Downloading as per Specifications		
49.	Whether protocol details of Optical port along with memory map/ API as specified has been submitted.		
50.	First communication port protocols		
51.	Whether protocol details of First communication port along with memory map/ API as specified has been submitted.		
52.	Second Communication port protocols		
53.	Whether protocol details of Second Communication port along with memory map/ API as specified has been submitted.		
54.	Whether Optical Port Compatible with the DCD/ CMRI as already existing with erstwhile PSEB/ PSPCL		
55.	Provide following details for		

	DCD/CMRI a) Parameters read out b) Clock synchronization c) Per Meter downloading time and uploading time for PC d) Programmable parameters e) Dimensions f) Weight		
56.	Whether DCD/ CMRI & PC software Provided		
57.	Whether Sealing arrangements provided on a) Meter body b) Meter Terminal Block c) Optical Port d) Communication ports		
58.	Details of Meter Construction Features (As per CBIP-88 report with latest amendments) a) Type & Quality of material of meter body and Case. b) Whether immune to vibration / shocks during transportation handling. c) Whether immune to external magnetic field. d) Whether immune to external electric field e) Other Protection features		
59.	Mounting Details (Rack/ Panel/ Metal Box/ etc.)		
60.	Metering Cubicle Details in case of rack type meter		
61.	Whether Connection Diagram & Terminal Marking as per relevant standards shown on the meter body		
62.	Whether the meters are type tested as per the relevant standards		
63.	Whether Type Testing done for a) HV Test (IS-14697, Clause 12.7.6.3) b) Insulation Resistance Test (IS-14697, Clause 12.7.6.4) c) Influence of external magnet (A.C) test (CBIP-88 report) d) Degree of Protection IP-51 for dust and moisture e) Regarding composition and properties of plastic		

	(Polycarbonate) material if used for making body of the meters f) and other type test certificates as per standards		
64.	Whether Detailed User Manual provided		
65.	Whether carries Warranty Period equal to Comprehensive O&M Period.		
66.	Whether details of Tamper/ Fraud/ Anomaly detection/ Logging of incidents are provided.		
67.	Whether details of Anomaly/ Fraud/ Tamper/ Battery failure/ Clock failure/ Configuration change indication are provided		
68.	Total number of tamper events logged		
69.	Whether agrees with Disclosure Requirements As per CBIP-88 report with latest amendments		
70.	Provide the Disclosure Details as above		
71.	Additional feature / information if any		

Performa –IX (B)

Check list-cum-Technical Particular Sheet for Conventional Energy Meters

Please repeat the above table as in case of ABT meters. However ABT specific clause may be left blank.

SIGNATURE:

NAME:

DESIGNATION:

DATE: SEAL OF COMPANY

Performa-X

Self Scoring Sheet for Bid Evaluation

Name of the SI :

Address :

Note: Bidder must ensure that following table is exactly same as given in the "Bid Evaluation Criteria" Section. While filling the self score sheet the cross reference of the document submitted to claim the marks may be submitted. SI shall also highlight the relevant clause of the document submitted to claim the marks. The submitted documents must also be signed and sealed by the respective authorities which may have issued the same along with clear contact details (Phone, Mobile, Email etc)

Sr.	Evaluation Criteria	Applicability	Document for Compliance & Verification	Marks	Self Scoring and cross reference of the document
	A. Experience in Automated Remote Meter Reading System			**40**	
1	Number of years of experience in providing Automated Remote Metering Solutions in any utility	Any member of the consortium	Completion Certificate of relevant assignments	3 (>3Y:3, 3Y-1Y:1, <1Y:1, None: 0)	
2	Number of Automated Remote Metering Projects - All types of metering points	Any member of the consortium	Work Order/ Purchase Order, Completion Certificate	4 (>2:4, 2-1:2, under implementation: 1, None:0)	
3	Number of Automated Remote Metering Projects - 11 kV and above feeder metering points (minimum 300 metering points)	Any member of the consortium	Work Order, Purchase Order, Completion Certificate	4 (>2:4, 2-1:2, <1(i.e. under implementation):1, None:0)	
4	Any AMR project executed for both online data refresh rate of 1 minute or better simultaneously from 100 or above metering points located at more than 50 locations as well	Any member of the consortium	Work Order, Purchase Order, Completion Certificate along with certificate from the end user clearly & unambiguously stating the facts.	6 (Yes: 6, under implementation: 3, No: 0)	

	as downloading of load survey, tampers, etc stored in the meter				
5	Any AMR Project/s executed with Availability Based Tariff Meters	Any member of the consortium	Work Order, Purchase Order, Completion Certificate	6 (Yes: 6, under implementation: 3, No: 0)	
6	Any AMR projects already executed (may be by SI or any other vendor) with communication technology offered by the SI for this Project for data transfer	Any member of the consortium	Work Order, Purchase Order, Completion Certificate along with certificate from the end user	6 (Yes: 6, No: 0)	
7	Number of Automated Remote Metering projects executed on turnkey basis involving comprehensive O&M for more than 3 years	Any member of the consortium	Work Order, Purchase Order, Completion Certificate	6 (>2: 6, <2 or under implementation: 3, None: 0)	
8	Any Similar CEC/ BCS as specified implemented suitable for ABT Regime/ Energy Audit	Any member of the consortium	Work Order, Purchase Order, Completion Certificate	5 (Yes: 5, under implementation: 3, No: 0)	
	B. System Integrator or SI's Organizational Capability			**10**	
1	Average annual turnover is more that INR 50 Crore in the best three financial years out of last 5 years.	SI	Financial turnover shall be certified by Chartered Accountant	1	
2	Manufacturing capability and/ or Service Provider of all or any one of the following: d) Meters of 0.2 s class accuracy manufacturer. e) In Software development of CEC/ Base	SI	Certified Proof to be submitted.	5 (If Meter manufacturer: 5, If in software development: 4, if Communication provider; 2, None: 0)	

	Computer Station. f) Communication Service provider of offered system.				
3	Employee base (>100) with the number of qualified employees on roll over the last financial year	SI	Certificate from SI	1	
4	Number of Quality certifications from an accredited and internationally reputed / renowned firm (viz. ISO 9000 etc.)	SI	Valid Proof of Certifications	1	
5	Local Presence Office(s) in Punjab with sufficient personnel and inventory of spares	SI	Details to be provided regarding the office(s) addresses and their infrastructure and employees	2	
	C. Proposed Integrated Automated Remote Metering Solution			**35**	
1	Detailed Write-up along with proposed Solution Design in lucid and plane language (with abbreviation/ standard industry terms expanded and any technology jargon used, explained properly) so that even lay person can understand the offered solution in single reading, with respect to the offered design, approach and methodology of the project along with	SI	At discretion of the Purchaser, shall be given depending upon the readability, responsiveness and suitability of solution offered, No claim/ liability shall be entertained on this account. As such this document may be prepared with full understanding of the scope of requirements and solution be	10	

	references (to the point) to the supplied documents/ catalogues in the submitted bid.		offered accordingly. Technical presentation and/ or demonstration and/ or visit to similar existing setup implemented by the SI/ Members may be required as specified if so desired by the Purchaser.		
2	With the solution provided by SI, shall the online data will be available simultaneously as specified from all the specified number of meters installed at specified number locations be available in CEC for monitoring purpose along with remote downloading of stored data, load survey, tampers etc for reporting/ billing/ UI, etc. purpose through same communication media/ channel.	SI	Self certified claim of SI. References to already implemented projects/ Demonstration/ visit to already implemented project may be required as specified if so desired by Purchaser.	5 (<=1 Minutes: 5, 1-2 Minutes: 3, 2-5 Minutes: 1, >5 Minutes: 0)	
3	With above online data communication going on, will the occasional downloading of stored data, load survey, tampers, etc. as may be required be possible without unduly effecting the routine online date acquisitions.		Self certified claim of SI. References to already implemented projects/ Demonstration/ visit to already implemented project may be required as specified if so desired by	5 (No effect: 5, Slight deterioration (i.e. degrade by one step as described above): 2, Complete stoppage of online data or refresh rate increase to > 5 minutes: 0)	

			Purchaser.		
4	If offered Meter has provision for connecting external auxiliary supply (AC and/ or DC normally available at grid substations) so that meter may not unnecessarily load the bus bar/ line PT/ CVT during its normal operation. However The meter must also be capable to operate with the power drawn from the PT/ CVT secondary circuits in absence of Aux. Power supply.	Offered Meter	Technical Specifications of the offered meter.	3 (Yes: 3, No:0)	
5	Whether the offered solution of remote reading of online & offline meter data being offered on Open Standard Protocol or Manufacture shall allow full details/ tools etc. for any third party to develop the communication capability without any royalty.	Offered scheme	Technical Specifications of the offered scheme. All & Complete Details of offered protocols of meters and non-royalty undertaking	7 (Open Standard Protocol as specified: 7, Propriety But Details available & Royalty free: 5, Else:0)	
6	Whether agrees to provide specified Service levels	SI	Self certified claim of SI. References to already implemented projects/ Demonstration/ visit to already implemented project may be required as specified if so desired by Purchaser.	5 (Yes: 5, Slight Deviation: 4 to 1, Major Deviations: 0)	

	D. General Organization and Solution Components			**10**	
1	Number of Consortium Partners (Manageability of a consortium would become difficult in case there are more than 2/3 members)	All members of the consortium	Memorandum of Understanding/ Agreement	2 (SI alone:2; 2-3 members including SI:1, >3: 0)	
2	Detailed acceptance test plan and procedures	SI	Proposed Solution	2	
3	Training Plan and Schedule including proposed training modules	SI	Proposed Solution	2	
4	Any time savings proposed in the implementation schedule	SI	Proposed Solution	2	
5	Properly Qualified persons proposed by the SI (CVs attached)	SI	Proposed Solution	2	
	E. Deviations Taken			**5**	
1	Degree of Deviation from the RFP terms and conditions	All members of the consortium	100 percent compliance is expected from SI and any major deviation from specified requirements, shall lead to disqualification. Some deviation may be allowed which does not have major impact on the overall functioning of RMR system and are not disqualifying the SI proposal otherwise; marks shall be deducted based on degree of deviation as mentioned in the	5 (No Deviations or Deviations leading to better solution: 5, Others/ restricting/ conditions etc: 4 to 0)	

			Deviation Statement (part of the Bid) from requirements specification and total number of deviations. Further Deviations which leads to better solution may be given full score.		
Total Evaluation Marks				**100**	

SIGNATURE:
NAME:
DESIGNATION:
DATE: SEAL OF COMPANY

Performa-XI

Contract Agreement Form

(To be entered on a non judicial Stamped Paper)

This contract agreement made this……. Day of …….in the year…….between the Punjab State Transmission Corporation Limited hereinafter called Purchaser

and M/s…….. having their Registered office at ……..hereinafter called 'System Integrator',

OR

and M/s…….. having their Registered office at ……..hereinafter called 'System Integrator/ Lead Member' of the Consortium consisting of (i) M/s ..... having Registered Office at ..... (ii) M/s ..... having Registered Office at ..... (iii) M/s ..... having Registered Office at ..... . Requisite power of attorney from all the members of the consortium as well as the MOU between the Consortium members are being made part of this contract agreement,

for complete implementation & comprehensive O&M of the Project Called "Selection of a System Integrator for Complete Implementation on Turnkey Basis & Comprehensive O&M Services, in respect of Intrastate Boundary Metering Scheme suitable for SLDC Operations based upon ABT Type Energy Meters as per the specification" in accordance with Purchase enquiry No SLDC/116/2011 dated ……, and SI's Proposal No …… dated……

This is in confirmation of the advance acceptance notified in the Purchaser's letter No……dated ..... wherein the Purchaser has accepted the proposal of SI as per Purchase Order/ Work order No……

In view of the foregoing the Purchaser and SI have agreed to the scope of work and Terms and Conditions of the order including Comprehensive O&M & Service Levels settled between them.

The RFP/ Tender specification, the SI's Proposal and related correspondence/ clarifications and Purchase Order acknowledged/ accepted by the SI from part of this agreement.

This agreement contains……..pages.

In witness whereof the parties here have to have affixed their signatures on the day, month and year written as above.

SYSTEM INTEGRATOR PURCHASER

Performa-XII

UNDERTAKING FORM

(To be entered on a Non Judicial Stamped paper of Rs…….only)

We…….. states that our works are situated in the State of Punjab and we claim "order Preference " as stipulated in the P.S.T.C.L. tender specification No……. due on……against which we have submitted our tender No…….. date…….. We undertake to execute the order/contract if place/awarded on to us even by counter offer at the rates worked out by Punjab State Transmission Corporation Limited in accordance with its Purchase Regulations. It is further understood that in the event of refusal by us or failure on our part to execute the order/contract (full or part) placed/awarded on us under 'Order Preference 'on any account what so ever, the Punjab State Transmission Corporation Limited shall have the right to forfeit the earnest money deposited by us and we shall have no claim for the refund thereof. The Punjab State Transmission Corporation Limited shall also have the right to suspend business dealing with us and to back list our firm, without prejudice to other rights accruing to the Punjab State Transmission Corporation Limited under the Purchase order/contract if placed/awarded on to us.

Signature of constituted attorney

Performa -XIII

Bank Guarantee for Contract - Performance Security

(To be entered on a non-Judicial stamped Paper of Rs. ____ only)

i) Bank Guarantee No._____Dated_____The Bank of _____hereby agrees unequivocally and unconditionally to pay, within 48 hours, on demand in writing from the _____ (Purchaser) or any officer authorized by him on his behalf, of any amount upto and not exceeding_____(in words Rs_____) to the Punjab State Transmission Corp. Ltd. on behalf of M/S_____who have entered into a contract or who unconditionally accepted the Purchaser Order-cum-Contract Agreement no._____dated_____for rendering consultancy _____for order value of Rs_____against specification No._____.

ii) This Guarantee shall be valid and binding on this Bank upto and including _____and shall not be terminable by notice or on account of any change in the constitution of the Bank or the firm of consortiums/suppliers/System Integrator or by any other reason whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alterations made, given ,conceded or agreed with or without our knowledge or consent, by or between the parties to the said contract/purchase order.

iii) Our liability under this Guarantee is restricted to Rs._____in words Rs._____). Our Guarantee shall remain in force until_____.

iv) We hereby agree that any claim or dispute arising under this Deed shall fall within the jurisdiction of competent courts at Patiala.

v) We hereby further declare that this Deed has been executed by our lawfully constituted attorney legally competent to sign and execute such deeds.

Signed_____

1. Witness_____ for
2. Witness_____ Bank

Performa -XIV

TESTING FACILITIES

Available at Works

Name of the Test	Details of Testing facilities available.	Remarks.
1. TEST OF RAW MATERIALS.		
i.		
ii.		
iii. etc.		
2. ROUTINE TEST.		
i.		
ii.		
iii. etc.		
3. ACCEPTANCE TEST.		
i.		
ii.		
iii.etc.		
4. TYPE TEST.		
i.		
ii.		
iii.. etc.		
5. Site/ GSAT TEST.		
i.		
ii.		
iii.. etc.		

NOTE:-In case, testing facilities are not available for certain tests, indicate in the remarks column from which testing house(s) Institution(s) these will be got carried out.

SIGNATURE:

NAME:

DESIGNATION:

DATE: SEAL OF COMPANY

Performa-XV

Price Bid Schedule

As the SI has to give the detailed proposal to meet with the requirements as has been specified in the RFP along with quantity of the various items, equipments, services, etc. to be provided for complete implementation of the Project, as such it is not possible to give the details of the quantity of each and every item nor it is possible to specify a format. Purchaser's need to have an answer to its requirements and Selected SI has to provide the end to end solution.

As such it is desirable that Price Bid Format be kept rigid/ standardized for ease in comparison & evaluation, as well as flexible, to cater to the various solutions which shall be offered by the SI. As such SIs are requested to follow the below format as a guide and try to adjust the prices of the supplied system in following format. However they are free to add as many sub headings as may be required below those mentioned in the format. If anything is not adjustable below the indicated headings then new can be added to give complete and comprehensive Price Bid.

It is important that this Price Bid Schedule should be enclosed in Part-III of the Bid. However the same format which the SI will be putting up with prices filled in the Part-III, should be given against the BOQ Schedule without prices filled in as specified therein as far as possible.

Important: All the quoted figures should be firm in Indian Rupees. Also refer to notes below the Price Bid performa before filling in the prices any clarification required may please be taken from the PSTCL before quoting for this tender.

Sr.	Description	Cross Reference to details of the item in the submitted proposal	Qty Along with units	Supply Portion							ETC and Other Services				Total (including Taxes)	Remarks
				Unit Price (Ex-Works price inclusive of packing & forwarding charges forming part of production cost)	Inland freight & insurance charges	Packing & forwarding charges not forming part of production cost, handling freight & transit insurance	Unit FOR Destination Price (excluding taxes & duties)	Total FOR Destination Price (excluding taxes & duties)	Taxes & Duties ED/ custom duty, CST/VAT, any Cess etc. on Ex-works prices		Unit E.T.C. charges (for supply portion) wherever applicable	Service charges (for non-supply portion) wherever applicable (Unit Rate/ Lumpsum)	Total E.T.C. and/or other service charges	Service Tax or any other Tax @ _____		
									ED/ Custom Duty @ ___	CST @ ___						
			A	B	C	D	E=B+C+D	F=A x E	G=B x Rate	H=(B+G) x Rate	I_1	I_2	$J=(I_1+I_2) \times A$ Or $J=(I_1) \times A + I_2$ (As applicable, if I_2 @unit rates or @Lumpsum respectively)	K= J x Rate	L=F+G+H+J+K	

1	**Remote End Metering Subsystem**															
1.1	**ABT Meters**		**700**													
1.2	**Conventional Meters**		**400**													
1.3	**CMRI or Data Collection Device (DCD) for ABT meters/ CEMs**		**25 for ABT Meters**													
			25 for CEMs													
1.4	**Mounting arrangement e.g. panels/ cubicles, Racks etc.**		**For 220 Locations**													
1.5	**CT/PT cables, communication, signal cables, arrangement for making the system secured for each location etc. (each item may be separated out in individual rows)**															
1.6	**Any other item/ service (Please Specify item/ service wise by inserting additional rows)**															
2	**Communication Subsystem**															
2.1	**Equipment for interfacing 700 Meters at 220 locations to proposed communication media e.g. DCU, Modem, Power**		**700**													

	Supply, Converters etc. (give details of equipment required in separate rows)															
2.1.1	One time charges till Comprehensive O&M starts as specified (e.g. SIM activation, any license, IP, BW allocation fees, etc.)		**700**													
2.1.1	Recurring Charges if any, subsequent to the commissioning of meters till Comprehensive O&M starts as specified		**700**													
2.2	**Equipment for interfacing 400 Conventional Meters at 220 locations to proposed communication media e.g. Modem, Converters, their Power Supplies etc.**		**400**													
2.2.1	One time charges till Comprehensive O&M starts as specified (e.g. SIM activation, any license, IP, BW allocation fees, etc.)		**400**													

2.2.1	Recurring Charges, if any, subsequent to the commissioning of meters till Comprehensive O&M starts as specified		**400**													
2.3	**Integration of existing Conventional Energy Meter including any H/w, S/w, APIs & Converters etc.**		**200**													
2.2.1	One time charges till Comprehensive O&M starts as specified (e.g. SIM activation, any license, IP, BW allocation fees, etc.)		**200**													
2.3.1	Recurring Charges, if any, subsequent to the commissioning of meters till Comprehensive O&M starts as specified		**200**													
2.4	Any Other **item/ service** (Please Specify) **(Please Specify item/ service wise by inserting additional rows)**															
3	**Centralized Energy Center Subsystem**															

3.1	**Communication Front End (CFE) Functionality (Dual Redundant as specified) (Initial CFE functionality required for 2000 meters)**															
3.1.1	Hardware (Give details)															
3.1.2	Software (Give details)															
3.1.3	Equipment for Connectivity of CEC to Meter Communication Hub, if any (e.g. Leased Line, etc)															
3.1.4	Recurring Charges, if any, subsequent to the commissioning of Lease Line till Comprehensive O&M starts as specified															
3.2	**Data Processing Server Functionality (Dual Redundant as specified)**															
3.2.1	Hardware (Give details)															
3.2.2	Software (Give details)															
3.3	**Data Storage/ HIS Server Functionality including Data Storage (Dual**															

	Redundant as specified)															
3.3.1	Hardware (Give details)															
3.3.2	Software (Give details)															
3.4	**Network Management Server Functionality (Dual Redundant as specified)**															
3.4.1	Hardware (Give details)															
3.4.2	Software (Give details)															
3.5	**Network Management Console/Workstation & Laser Printer**															
3.5.1	Hardware (Give details)		**1**													
3.5.2	Software (Give details)		**1**													
3.6	**Billing Server Functionality**															
3.6.1	Hardware															
3.6.2	Software															
3.7	**Billing Generation Console/Workstation & Laser Printer**															
3.7.1	Hardware (Give details)		**1**													
3.7.2	Software (Give details)		**1**													

3.8	**Scheduling Server Functionality (Dual Redundant as specified)**															
3.8.1	Hardware (Give details)															
3.8.2	Software (Give details)															
3.9	**Scheduling Console/Workstation suitable for SLDC's responsibilities & Laser Printer**															
3.9.1	Hardware (Give details)		**1**													
3.9.2	Software (Give details)		**1**													
3.10	**Development Server Functionality**															
3.10.1	Hardware (Give details)															
3.10.2	Software (Give details)															
3.11	**Development Console/Workstation & Laser Printer**															
3.11.1	Hardware (Give details)		**1**													
3.11.2	Software (Give details)		**1**													
3.12	**ICCP Server Functionality**															
3.12.1	Hardware (Give details)															
3.12.2	Software (Give details)															

3.13	**Local/ SLDC Operator Consoles with Laser Printer**															
3.13.1	Hardware (Give details)		**4**													
3.13.2	Software (Give details)		**4**													
3.14	**Remote Operator Console with Laser Printer**															
3.14.1	Hardware (Give details)		**2**													
3.14.2	Software (Give details)		**2**													
3.14.3	Communication Connectivity for remote consoles															
3.14.3.1	Hardware(Give details)		**2**													
3.14.3.2	One time charges till Comprehensive O&M starts as specified (e.g. SIM activation, any license, IP, BW allocation fees, etc.)		**2**													
3.14.3.3	Recurring Charges, if any , subsequent to the commissioning of consoles till Comprehensive O&M starts as specified		**2**													
3.15	**Hosting of Integrated Website locally as specified (no page**															

	wise charges will be acceptable) (Dual Redundant)															
3.15.1	Hardware(Give details)															
3.15.2	Software(Give details)															
3.15.3	Connectivity to Internet															
3.15.3.1	One time charges till Comprehensive O&M starts as specified (e.g. SIM activation, any license, IP, BW allocation fees, etc.)		**1**													
3.15.3.1	Recurring Charges of lease line if any subsequent to the commissioning of Website till Comprehensive O&M starts as specified		**1**													
3.16	**CEC Level Peripherals & other equipment as specified or as required for the whole network.**															
3.16.1	Laser printer of A3 size		**1**													
3.16.2	High resolution colour printer,		**1**													
3.16.3	Duplex Laser printer		**1**													
3.16.4	**Any other item/s**															

	(Pls give details)															
3.17	**GPS Clock, Connectivity to CEC & Time/ Date Display for Control Center**		**1**													
3.18	**Networking/ LAN equipment e.g. Router, Switches, Firewall etc. (Dual Redundant)**															
3.18.1	Hardware(Give details)															
3.18.2	Software(Give details)															
3.19	**Any Other item/ service (e.g. Mounting arrangement, panels/ cubicles, Racks, LAN cabling, Power supply cabling, Conduiting, Laying etc.)** (Give details and segregate by inserting additional rows as required)															
3.20	**Furniture for CEC**															
3.20.1	Furniture (One Table & revolving chair of reputed make for each Local/ Remote/ console/ workstation)		**10**													
3.20.2	Furniture for CEC e.g. for servers,		**As require**													

	maintenance personals and for keeping the records (Give Details)		**d**													
4	**Comprehensive O&M (SI shall quote year-wise.) for 700 ABT meters & 400 CEMs + for 200 existing CEMs)**		**7 Years**													
4.1	**1st Year O&M**															
4.1.1	Recurring Charges															
4.1.1.1	Primary Connectivity															
4.1.1.2	Alternative Connectivity for 5% locations as specified.															
4.1.2	Fixed Charges															
4.1.2.1	CEC End Personals for system administration, report configuration, support and further development as may be required including for field work															
4.1.2.2	O&M Cost of CEC including consumables as specified															
4.1.2.3	O&M Cost of Remote End Equipment i.e ABT Meter, CEM, DCU/ Modem, etc.															

4.1.2.4	O&M Cost of Remote End interfacing Equipment in case of interfaced existing CEMs															
4.1.3	Any other item.															
4.2	**2nd Year O&M**															
4.2.1	Recurring Charges															
4.2.1.1	Primary Connectivity															
4.2.1.2	Alternative Connectivity for 5% locations as specified.															
4.2.2	Fixed Charges															
4.2.2.1	CEC End Personals for system administration, report configuration, support and further development as may be required including for field work															
4.2.2.2	O&M Cost of CEC including consumables as specified															
4.2.2.3	O&M Cost of Remote End Equipment i.e ABT Meter, CEM, DCU/ Modem, etc.															
4.2.2.4	O&M Cost of Remote End interfacing Equipment in case															

	of interfaced existing CEMs															
4.2.3	Any other item.															
4.3	**3rd Year O&M**															
4.3.1	Recurring Charges															
4.3.1.1	Primary Connectivity															
4.3.1.2	Alternative Connectivity for 5% locations as specified.															
4.3.2	Fixed Charges															
4.3.2.1	CEC End Personals for system administration, report configuration, support and further development as may be required including for field work															
4.3.2.2	O&M Cost of CEC including consumables as specified															
4.3.2.3	O&M Cost of Remote End Equipment i.e ABT Meter, CEM, DCU/ Modem, etc.															
4.3.2.4	O&M Cost of Remote End interfacing Equipment in case of interfaced existing CEMs															
4.3.3	Any other item.															
4.4	**4th Year O&M**															

4.4.1	Recurring Charges															
4.4.1.1	Primary Connectivity															
4.4.1.2	Alternative Connectivity for 5% locations as specified.															
4.4.2	Fixed Charges															
4.4.2.1	CEC End Personals for system administration, report configuration, support and further development as may be required including for field work															
4.4.2.2	O&M Cost of CEC including consumables as specified															
4.4.2.3	O&M Cost of Remote End Equipment i.e ABT Meter, CEM, DCU/ Modem, etc.															
4.4.2.4	O&M Cost of Remote End interfacing Equipment in case of interfaced existing CEMs															
4.4.3	Any other item.															
4.5	**5th Year O&M**															
4.5.1	Recurring Charges															
4.5.1.1	Primary Connectivity															

4.5.1.2	Alternative Connectivity for 5% locations as specified.															
4.5.2	Fixed Charges															
4.5.2.1	CEC End Personals for system administration, report configuration, support and further development as may be required including for field work															
4.5.2.2	O&M Cost of CEC including consumables as specified															
4.5.2.3	O&M Cost of Remote End Equipment i.e ABT Meter, CEM, DCU/ Modem, etc.															
4.5.2.4	O&M Cost of Remote End interfacing Equipment in case of interfaced existing CEMs															
4.5.3	Any other item.															
4.6	**6th Year O&M**															
4.6.1	Recurring Charges															
4.6.1.1	Primary Connectivity															
4.6.1.2	Alternative Connectivity for 5% locations as specified.															

4.6.2	Fixed Charges															
4.6.2.1	CEC End Personals for system administration, report configuration, support and further development as may be required including for field work															
4.6.2.2	O&M Cost of CEC including consumables as specified															
4.6.2.3	O&M Cost of Remote End Equipment i.e ABT Meter, CEM, DCU/ Modem, etc.															
4.6.2.4	O&M Cost of Remote End interfacing Equipment in case of interfaced existing CEMs															
4.6.3	Any other item.															
4.7	**7th Year O&M**															
4.7.1	Recurring Charges															
4.7.1.1	Primary Connectivity															
4.7.1.2	Alternative Connectivity for 5% locations as specified.															
4.7.2	Fixed Charges.															
4.7.2.1	CEC End Personals for system administration,															

	report configuration, support and further development as may be required including for field work															
4.7.2.2	O&M Cost of CEC including consumables as specified															
4.7.2.3	O&M Cost of Remote End Equipment i.e ABT Meter, CEM, DCU/ Modem, etc.															
4.7.2.4	O&M Cost of Remote End interfacing Equipment in case of interfaced existing CEMs															
4.7.3	Any other item. (Give details)															
5	**Tools & Accessories (e.g. compilers, debuggers, test tools, etc, As may be Required/ proposed, Give Details)**															
6	**Type Test Charges (as specified)**															
6.1	**For ABT meter**															
6.2	**For CEM**															
7	**UPS 20kVA x 2 (With 2 Hours**															

	backup and auto changeover type)															
8	**Training (as specified)**															
9	**Any other Mandatory, Miscellaneous Items/ Services (Give Details by increasing the rows if required**															
Total Lump Sum Cost (in Rs.) (P= Sum of all cost in column (L))																
Total Lump Sum Cost (in Words)																

Important Notes:

1. As already stated, the above format is a guideline. It is the responsibility of the SI to propose a complete solution (and to include all such items in the Price Bid), to meet with the requirements/ expectations of the Purchaser as has been detailed/ specified in the RFP or as may be required for the proposed solution offered by the SI, or any other item which the SI know from its experience that it will be required in future by the Purchaser for fulfilling the intended purpose. All the above items/ equipment/ services etc if indicated as lot/ Lumpsum must be elaborated in the bid/ BOQ schedule as well as technical bid for meeting with the functional/RFP requirements. For this purpose cross reference to that description/ elaboration must be given in the price bid.
2. SI shall provide break-up of quantities as far as practical, supply cost, Services (i.e. Survey, Design & Engineering, Erection & Testing, commissioning, etc.), packing, freight & Insurance, FOR Destination prices, taxes & levies (give complete details), total price for the Roll-out phase and same year wise for the Comprehensive O&M Period too. Only the prices & taxes etc. which are quoted or taxes as per actual in the price bid shall be payable by the Purchaser. Regarding Taxes applicable full taxes at the time of quoting may be mentioned. Any concession etc. if applicable e.g. against Form 'C' may also be mentioned.
3. The lump sum amount arrived at as mentioned in (P) shall be used for Price bid evaluation.
4. The SI shall indicate the details of applicable rate of taxes and duties considered in column (G,H &K) above.
5. The SI shall indicate the unit ex-works prices in column (B) and unit FOR site/destination prices in (E) by adding F&I and P&F charges
6. The SI shall indicate unit Erection, testing & Commissioning (ETC) charges in column (I) for that item
7. Total item prices (L) shall include sum of supply & ETC price including applicable taxes i.e. (F)+(G)+(H)+(J)+(K)
8. Even if any item is mentioned included in the prices it must give a breakup of the same and must be enumerated at least (e.g. any tools, compilers, debuggers, test tools, various types of cables, convertors, mounting arrangements, furniture, any other item, etc, these must be (with brief specifications including its make/ model/dimensions etc.) in the BOQ.

9. The above quoted Unit prices shall be applicable for price adjustment on account of variation in quantity during the pendency of the Contract that is during Roll-out and during Comprehensive O&M Phase. Also during design/ execution of this work, in case there is any change in the specified location/ number of meters, etc. then the contract value will be adjusted in accordance with the unit prices for the corresponding items to be added/ deleted. Bidders are advised to give break up of prices as far as possible so that it is possible to calculate unit rates for Ex-Works, FOR destination prices even for execution & other services. Otherwise any dispute later on, due to not meeting this requirement shall be settled in favour of Purchaser.
10. The price evaluation of the bids will be done on the basis of information provided by the SI in the Performa, schedules, undertakings, certificates, specified write-up, etc., submitted as has been asked for in the RFP.
11. Quantity/ number of minimum items required by Purchaser are indicated in the Sample BOQ and must be quoted at least for that quantity/ number.
12. Price Bids must be submitted in the prescribed sample format (Performa-XV) clearly indicating the applicable taxes (ED, CST, Service Tax, which are payable by Purchaser. In case any tax component is not payable or less payable (due to any concession available) than it must be indicated in the price bid, by purchaser, clear remarks against the same must be given in the remarks column. Otherwise in case of any ambiguity full cost loading of taxes shall be made and Purchaser shall not consider any plea later on. In case of any double bid or a bid which can be interpreted with two final prices, the same shall be evaluated to the disadvantage of the bidder, and even if with that disadvantage the bidder has least cost and finally selected, it shall have to execute the order at lesser of two costs. As such special attention must be given while filling in the Price bid performs so that it may not lead to ambiguous price evaluation.
13. Efforts must be made to segregate the costs for recurring & non-recurring cost/ charges. As far as possible total prices may be arrived at starting from unit ex-works item prices and unit service charges and then building up these prices by applying Freight & Insurance, Packaging & forwarding, various Taxes on these prices to arrive at total price for that item. It is required that Quantity column in the price bid must be filled if quoted prices are required to be increased/ decreased on prorate basis with change in quantity. In case no quantity is mentioned or lumpsum is mentioned in the price bid or stated to be included in the quoted prices without mentioning in which specific item price it is included, against an item, it shall be assumed to be fixed and shall not be payable on increasing/ decreasing in the ordered quantity even during O&M period and shall have no effect on that quoted price.
14. All the component cost shall be included to arrive at final cost and bidder has no right to ask/ suggest for excluding any component from the final cost. Any such plea shall be out rightly rejected.
15. Note: Requirement of mounting arrangement will depend upon the actual field conditions and as per the scheme provided by the bidder, but it will be used for price bid evaluation purposes.

SIGNATURE:
NAME:
DESIGNATION:
DATE: SEAL OF COMPANY

Performa-XVI

BOQ/ BID Schedule

No format is being specified here. SI has to device a format for the Price Bid Schedule to be enclosed in Part-III of the Bid as mentioned in Performa-XV. The same/ similar (Atleast in same logical sequence) format which the SI will be putting up with prices filled in the Part-III, should be given against the BOQ Schedule without prices filled in Part-II of the Bid.

SIGNATURE:

NAME:

DESIGNATION:

DATE: SEAL OF COMPANY

Performa-XVII

Maximum & Minimums & Scalability (without degradation of overall performance) In respect of all the Proposed Items of the Solution

No format is being specified here. SI has to device a format for the Price Bid Schedule to be enclosed in Part-III of the Bid as mentioned in Performa-XV. The same/ similar (Atleast in same logical sequence) format which the SI will be putting up with prices filled in the Part-III, should be given here with Maximum, Minimums & Scalability (i.e. Scalability possible without degradation of overall performance) columns of the same items or as may be required in Part-II of the Bid.

SIGNATURE:

NAME:

DESIGNATION:

DATE: SEAL OF COMPANY

Performa-XVIII

CHECK LIST

(This must accompany with the Techno-Commercial Bid)

Sr.	Description	Status (Yes/No/ NA)	Cross Reference
	Section-2		
1.	Whether the SI has taken care about the complete scope of the specification including ABT meters, conventional meters and existing conventional meters etc.		
2.	Whether the SI has submitted the requisite number of Sample meter with the tender		
3.	Whether SI has filled all the deviations taken for any clause/ requirement as per the specification in the Performa-1		
	Section-3		
4.	Whether MoU/ agreement clearly specifying the stake of each member and outlining the roles and responsibilities of each member has been submitted as specified in RFP		
5.	In case SI is a 100% subsidiary/ JV, parent company/s whether the requisite authorization from the each partner/ parent has been submitted		
6.	Whether SI has attached/filled all the documents/performa required for fulfilling technical experience requirements (Minimum pass/fail)		
7.	Whether Reports on the financial standing of the SI and its consortium members, such as profit and loss statements and auditor's reports for the past five financial years has been submitted in Performa-V and cross referenced to the attached financial reports/ statements like balance sheets, profit & loss statements.		
8.	Whether the SI has submitted the undertaking as per Performa-III		
9.	Whether SI (lead member of the consortium) has Quality certifications from an accredited and internationally reputed / renowned firms (viz. ISO 9000 etc.)		
10.	Whether SI (lead member of the Consortium) has office in Punjab.		
11.	If SI does not have the office in Punjab, Whether SI has furnished the requisite undertaking that an office shall be opened in Punjab, with sufficient personnel and inventory of spares within a month on selection as successful SI.		
12.	Whether the SI (Lead member of the consortium) has submitted bank's certificate of solvency.		
13.	Whether the SI (Lead member of the consortium) must have company registration certificate, registration under Labour Laws Contract Act, valid sales tax registration certificate and valid service tax registration certificate.		
14.	Whether the contact details of SI & Members in Performa-		

Sr.	Description	Status (Yes/No/ NA)	Cross Reference
	VI has been submitted.		
15.	Whether the Profile of the SI (All members of consortium) in detail has been submitted		
16.	Whether the Copies of original documents defining the constitution or legal status, place of registration and principal place of business (All members of consortium) submitted.		
17.	In case of Consortium, Whether Power of attorney from all members of consortium authorizing the signatory (SI) of the Bid to commit to PSTCL for implementation & 7 years of Comprehensive O&M of the project submitted		
18.	In case of Consortium, Whether every member is willing to extend the Comprehensive O&M of the Project for more years as may be mutually agreed, if required by the Purchaser.		
19.	Whether the document mentioning monetary value of each project/ work performed by the SI during the last three financial years has been submitted (All members of consortium).		
20.	Whether the Performa-II regarding Experience in projects/ works of a similar nature and list of major clients who may be contacted for further information (All members of consortium) has been submitted.		
21.	Whether copy of Permanent Account Number (PAN) from Income Tax Authorities of area of operation of the SI has been submitted.		
22.	Whether copies of Income Tax Return for the last three financial years of SI has been submitted		
23.	Whether the financial data provided as per Performa-V has been certified by Chartered Accountant		
24.	Whether Information regarding any litigation, current or during the last three years, in which the SI or any member of the consortium is involved along with the parties concerned, and disputed amount has been provided (All members of consortium)		
25.	Whether SI/ any member has given an undertaking (Performa-III) for having thorough understanding of ABT scheme and that it is further willing to understand the user specific requirements from time to time & adaptation of ABT as implemented in Punjab and accordingly implement the same for the Purchaser.		
26.	Whether SI and its consortium members has submitted all the documents mandatory for the qualifying requirements (minimum pass/fail criteria)		
27.	Whether the SI has submitted the proposed methodology of execution of works backed with their planning and deployment, duly supported with broad calculations and		

Sr.	Description	Status (Yes/No/ NA)	Cross Reference
	quality assurance procedures proposed to be adopted, justifying their capability of achieving the completion of work as per milestones specified in "Proposed Implementation Plan/ Schedule" and/ or as has been proposed by the SI itself, section within the stipulated period of completion..		
28.	Whether the SI has submitted the filled the performa (VI) for filling the details of its manufacturing works		
29.	Has the SI, who doesn't have own facility to manufacture materials required for the work, has submitted its vendor list from where it will procure the material/ services with their credential and annual turn over etc. as specified		
30.	Whether the SI has submitted the draft TPA agreement as specified		
31.	Whether SI/ bidder have attached a Certificate from banker (issued not earlier than three months prior to the date of bid opening) indicating various fund based/ non fund based limits sanctioned to bidder and extent of its utilization as on date.		
	Section-4		
32.	Whether the entire bid documents have been signed by authorized signatory and whether Legal power of attorney in favour of signatory has been enclosed.		
33.	Whether offer is valid for atleast for 180 (One hundred eighty) days from the date of opening of techno-commercial bid.		
34.	Whether the SI has submitted the Detailed write up of the proposal along with the proper indexing and cross reference		
35.	Whether the SI has completely understood the Rate contract clause of the this section and has quoted accordingly		
36.	Whether a demand draft amounting to Rs. 2500/- in favour of AO/SLDC, PSTCL, Ablowal(Patiala) payable at Patiala in respect of cost of specification is attached		
37.	Whether the bids submitted are in Quadruplicate (4 sets) and tagged as per specifications		
38.	Whether the softcopy on CD has been submitted		
39.	Whether tender bid is unconditional?		
40.	Whether the Proposal/ Tender has been submitted in three parts i.e. Part-I, Part-II & Part-III. Each part will be enclosed in a separate sealed envelope duly super scribed on the each envelope as specified		
41.	Whether all above three envelopes have been further enclosed in a larger sealed envelope (double covers) both covers (inner & outer) super scribed as specified along with Covering letter (Performa-VII)		

Sr.	Description	Status (Yes/No/ NA)	Cross Reference
	Section-5		
42.	Whether the proposed system is designed for continuous operation (24 hours/day, 365 days/year) without any need for shutdowns for any activity. Further all Shutdown requirements are mentioned in the proposal		
43.	If the ABT Meters are to be sourced by SI from any source which is neither the SI nor a member of consortium, then whether the Qualifying details & proofs submitted		
44.	Whether the SI has submitted the full details/ tools as specified in case of proposed Protocol for Meter to CEC		
45.	Whether the SI has submitted the full details/ tools as specified in case of proposed Protocol from Meter to SCADA/ RTU		
46.	Whether the offered system fulfil the requirement of desired refresh rate in case of ABT meters and Conventional Energy meters as specified.		
47.	Whether the SI has submitted the full details/ tools as specified in case of proposed Protocol for Meter Optical Port		
48.	Whether the proposed CEC system supplied is being designed to Integrate with Integrated SCADA/ EMS Scheme coming up separately as specified.		
49.	Whether details of equipment/ software/ settings etc required by SI to Integrate the proposed CEC with Integrated SCADA/ EMS Scheme coming up separately as specified have been mentioned in the proposal		
50.	Whether the SI proposed system has the provision to Integrate the already installed ABT Meters at OA Customers with proposed CEC system being supplied		
51.	Whether the SI will integrate the already existing conventional meters with the CEC for Transmission Level Energy auditing purposes and has attached the technical write up for the same		
52.	Whether details of equipment/ software/ settings etc required by SI to Integrate the already installed Meters at OA Customers with proposed CEC system as specified have been mentioned in the proposal		
53.	Whether the proposed Initial CEC end sub system being implemented has the capacity to accommodate minimum 2000 metering points (Both SEMs/ CEMs)		
54.	Whether the CEC system except Communication front end (CFE) functionality has the capability to handle /accommodate data for at least 10000 metering points, located at more than 1500 locations without degradation of performance.		
55.	Whether the Communication front end functionality is scalable to at least 10000 meter points from 1500 locations		

Sr.	Description	Status (Yes/No/ NA)	Cross Reference
	in increments by addition of modules as and when required on addition of new meters at new locations.		
56.	Whether the SI has quoted for minimum number of each item specified in BOQ Performa (XV)		
57.	Whether the number of Operator Consoles (Local/ Remote etc.) are possible to be increased		
58.	Whether SI shall be able to implement all the three Sub-systems i.e. Remote Meter End, associated communication & CEC as specified		
59.	Whether the SI has specified the time requirements for developing various changes/ services/ amendments/ display building reports/ installation & commissioning of new meters including communication, other such like activities etc which may be sought by the Purchaser from time to time as the system will evolve.		
60.	CEC software should be capable to handle data (remotely and/ or imported through CMRI) from all meters, may be by use of converters, APIs etc. and CEC shall be meter manufacturer independent. Whether any details required from third party meters have been specified in the proposal.		
	Section-6		
61.	Whether the SI agrees with the proposed implementation schedule and if not, whether has submitted the revised schedule taking care of the deadline as specified in the RFP		
62.	Whether the SI has submitted the relevant documents, Charts, Solution Design, expected time lines etc as per in compliance to the RFP Clauses 6.2.1, 6.2.2, 6.2.3, 6.2.4, 6.2.5, 6.2.6		
63.	Whether the SI has filled all the performas required to be submitted.		
64.	Whether translated copy of any document in any other language except in English/ Punjabi has been translated and, duly attested by the authorized signatory of the SI/ Bidder		
	Section-7		
65.	Whether the SI has filled the self scoring sheet (Performa-X) for bid evaluation purposes and has highlighted the cross reference in respect of documents attached		
	Section-8		
66.	Whether SI has completely read and understood the payment terms and desired service levels and penalties clauses.		
	Section-9		
67.	Whether the SI has mentioned the recurring, non recurring, license, permissions, liaison, fees, etc, if any for all hardware, software, installation, field implementation,		

Sr.	Description	Status (Yes/No/ NA)	Cross Reference
	Communication, frequency allocations etc. for **initial commissioning** in the proposal.		
68.	Whether the SI has mentioned the recurring, non recurring, license, permissions, liaison, fees, etc, if any for all hardware, software, installation, field implementation, Communication, frequency allocations etc. for the **O&M period,** in the proposal.		
69.	Whether SI has agreed to provide Comprehensive O&M for 7 years as specified		
70.	Whether the SI has taken care about the consumables required during comprehensive O&M period		
71.	Whether the SI has given the complete details of recurring/non-recurring charges to be incurred during Comprehensive O&M period so that per unit charges may be calculated.		
	Others		
72.	Whether all the Price schedules as per Performa XV have been duly filled, signed and enclosed.		
73.	Whether all the BOQ schedules as per Performa XVI have been duly filled, signed and enclosed.		
74.	Whether all the offered equipment/ sub assemblies are type tested as per the requirement of the Specifications. (No non type tested equipment/ sub assembly nor plea of the bidder that it will get the item type tested if it is successful shall be acceptable).		
75.	Whether SI have enclosed the Type test reports/ certificates of all the equipment/ items offered in the bid		
76.	Whether SI has quoted the Type test charges of various equipment (i.e. ABT Meters /Conventional meters etc.) in Performa -XV.		
77.	Whether the SI has provided the Quality Assurance Plan along with the bid/ Tender		
78.	Whether the SI has provided the Training plan along with the bid/ Tender		
79.	Whether the SI has taken care that the supplied communication and other equipment, which have been sourced from outside India are not under restriction and/ or in any list banning its installation in India as per Govt of India instruction if any and whether the Certificate in this respect enclosed.		
80.	Whether the SI has quoted Firm Prices in Indian Rupees.		
81.	Whether the Web Server/ site shall have the suitable/ capability/ software to allow at least 500 multiple users with response time of few (5 s) seconds.		
82.	Has the SI proposed database storage for at least 2 years for all the data which shall be available from the meters, calculated, corrected, scheduling etc as specified.		

Sr.	Description	Status (Yes/No/ NA)	Cross Reference
83.	Weather the SI has mentioned the power supply requirements and load of the proposed CEC, Meter End Equipment and Communication subsystem at each location which are required to be provided by Purchaser.		
84.	Whether the SI has given the detailed Maximum and Minimums in respect of capacity & capability of all the supplied equipment in the Performa-XVII		
85.	Whether the offered CEC system/ software should be capable to acquire data from any IED, etc and also send commands/ text to such devices for execution/ display as specified.		
86.	Whether SI has filled the Check List cum technical particulars sheet for ABT and conventional meters (Performa-IX-A & IX-B)		
87.	Whether SI has submitted the list of testing facilities available (Performa-XIV)		
88.	Whether the SI has quoted for the Mounting arrangement/ Panel requirement charges as specified in the bid		
89.	Whether the SI has given details of the dimensions of the meter as well as dimensions of the space required for mounting the meter		

Note: This check list is for providing assistance to the SI in submitting the Bids. However It is the responsibility of the SI that all documents, stipulation, details, write-ups, Performa, etc. of RFP must accompany with the bid, whether mentioned in the check list or not, in appropriate parts of the three part bidding process.

SIGNATURE:
NAME:
DESIGNATION:
DATE: SEAL OF COMPANY